No 3, 1990

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COMMODORE
and AMIGA REVIEW

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Commodore Annual 1990

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Guide to Communications

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Australian BBS List

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GET MAXIMUM OUTPUT FOR MINIMUM INPUT.

Since you've put in a few hard earned paychecks into a Commodore system, how can you be sure you'll ever get more than just a few video games out?

Well, you could start by booting up GEOS 2.0. The hard working software that's easy to use and easy on your wallet.

You see, with GEOS 2.0 you don't need to memorize complicated keyboard commands. All you need to remember is this:

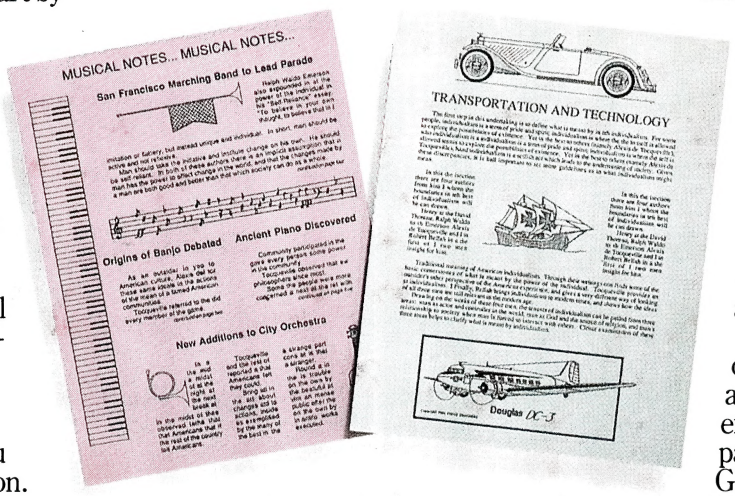
Point and click.

GEOS 2.0 shows you options, and you point to your selection. Then all you do is click your mouse or joystick.

Pretty simple, huh?

WE PUT A LOT MORE IN, SO YOU COULD GET A LOT MORE OUT.

GEOS 2.0 squeezes the absolute maximum out of Commodore 64's and 128's with an array of applications you can use millions of ways. In fact, millions of people do.


MUSICAL NOTES... MUSICAL NOTES...
San Francisco Marching Band to Lead Parade
Origins of Banjo Debated
Ancient Piano Discovered
New Additions to City Orchestra
TRANSPORTATION AND TECHNOLOGY
Douglas DC-3

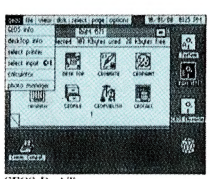
The important thing is that with GEOS 2.0, you can create outstanding documents with outrageous graphics. That's because GEOS 2.0 includes geoWrite (an advanced, full-featured word-processor), and geoPaint, a graphic workshop with over 32 different tools and patterns.

With geoPaint, you can draw almost anything. Invert, mirror or rotate it. Then stretch and scale and save it in your GEOS 2.0 Photo Album for use later. You can mix text and graphics. Or trade them back and forth.

GEOS 2.0 even comes with its own deskTop, which lets you manage your files and disks easily and efficiently. There's a calculator, note pad and alarm clock, too. And GEOS 2.0 is LaserWriter™ compatible. Which means you get a better looking document and a harder working system that's easier to learn.

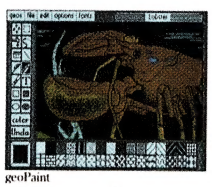
INCREASE YOUR OUTPUT WITH A TURBO.

For flat out fast performance, GEOS 2.0 even comes with a diskTurbo, which cranks up your Commodore five to seven times its normal operating speed.


GEOS DeskTop

Now, if all that weren't enough, it also converts other programs' text in a heartbeat. And then checks your spelling with geoSpell. And comes with a mail merge for stamping out labels and form letters. And eleven built-in fonts. And a file manager.

The bottom line is that GEOS 2.0 can do just about anything expensive PC's can do, including


geoPaint

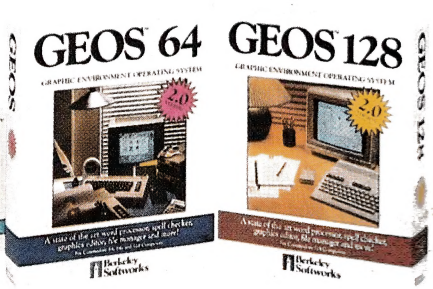
one thing they can't:

Share data with all our other GEOS 2.0 applications.

A HARD WORKING FAMILY.

Now, if you like the idea of what GEOS 2.0 can do by itself, just think what life would be like if you could share text, graphics and information amongst a whole family of applications.

Well, that's what you get with our entire GEOS line. There's a spreadsheet, a database and a desktop publisher. Not to mention a chart program, accessories and over 53 additional fonts.



So if you'd rather take more from your Commodore and less from your wallet, insist on GEOS 2.0. For a minimal investment, it'll do more than just make your documents look a whole lot better. And that could pay out handsomely for you.

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Commodore Annual 1990

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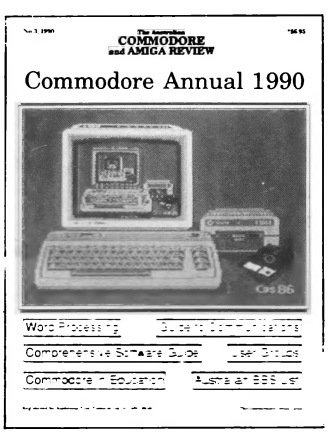

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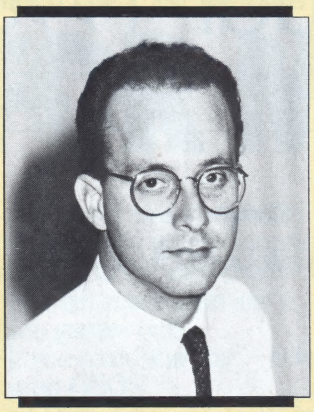


HOME COMPUTING started out with machines you had to build yourself. These computers were no simple kit you merely screwed together. Every component needed to be soldered into place. Times progressed, and mass produced models appeared. Commodore, Apple and Sinclair paved the way for many budding computer hacks to venture into the land of BASIC and machine code programming.

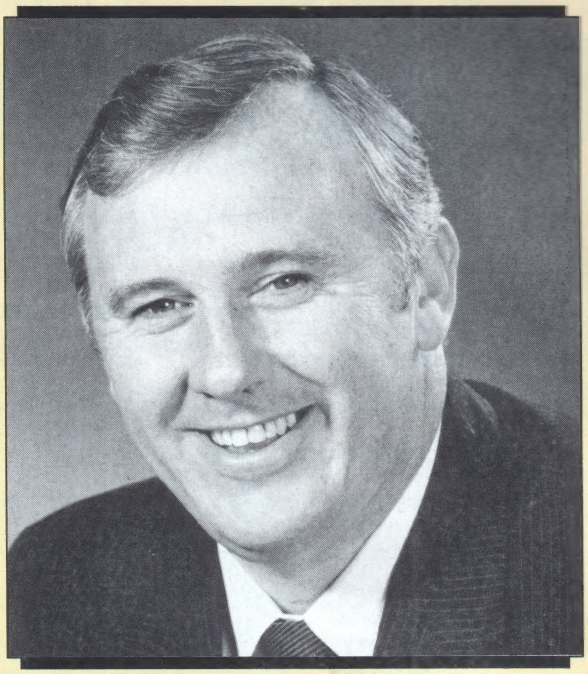
Owning a home computer in those days was all about learning how it worked, and getting in and fiddling with the operating system as much as possible. Today, computer technology at both the hardware and software level has advanced past the scope of most home users. The days of knowing your machine upside down and inside out are gone.

The Commodore 64 has now survived close to a decade. It remains the one home computer you can buy, and look forward to tinkering with at the lowest levels without a degree in computer engineering.

There are plenty of off-the-shelf programs to make using your C64 for practical and entertainment reasons easy. With so many years life behind it, the C64 has amassed a huge range of programs, though some of the earlier titles may no longer be available. We have compiled a complete list of all those programs which can be purchased locally - see the Software Guide in this Annual. If the program you're looking for is not on the list, you may not be able to buy it in Australia. However, you are sure to find a similar one.

We hope you enjoy our 1990 Annual. Don't forget, more articles like those in this publication appear every month in *The Australian Commodore and Amiga Review.* ❑

Andrew Farrell
Editor



THERE ARE MANY computer companies in the marketplace, each trying to carve out their own little "niche". Some concentrate on games machines - others the top end of the home market, home offices, and so on. Others look at small business, while yet others are after the large corporations, government and professional users.

There is only one company which covers *every* section of the marketplace. That company happens to be the world's largest manufacturer of computers.

Of course, it's Commodore.

The Commodore 64 covers both the games and the home computer market. In fact, this remarkable machine is the world's largest selling individual model - over seven million of this one machine have been sold!

For small business, we have both the PC range and the amazing Amiga. Commodore top-end PC models, and the Amiga 2000 and 2500 cover the corporate and government market.

For end users, the wide Commodore range has particular benefits. Software applications are available to suit virtually every application you can imagine. Also, because of volume, prices of software for Commodore machines are often lower than for others.

We also benefit from economies of scale in our manufacturing that others cannot hope to achieve.

And because of such a huge user base, support groups and companies for Commodore computers offer those extra services that no computer company itself can provide.

Where do we go in the next year?

We see that Commodore will continue to dominate the home computer market, and gain an increasing share of the business, corporate and professional market. The Amiga and our PC range are already widely used in business, and becoming more so every day.

As technology advances (which it continues to do at an ever-increasing rate), Commodore Computers will be right up there with it.

As you would know, Commodore Computers are sold right around the world (over 51 countries, to be precise!). World-wide, the company has enjoyed excellent results over the past year, with the Australian results right at the top.

For this, I personally thank you.

Indeed, every member of the Commodore staff, the 1500+ dealers and their staffs, software and hardware suppliers, and so on, thank you.

By supporting Commodore you are helping to keep thousands of other Australians, and their families, housed, clothed and fed. That makes you pretty important to all of us!

If we at Commodore ever do anything that makes you think you're not important, please let me know. ❑

Pat Byrne,
Managing Director,
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Starting the right way!

by Andrew Farrell

Home computing has the potential to be a lot of fun. The right software and the right advice will ensure you end up with a system you understand and can enjoy using. A few wrong decisions can mean problems.

TAKE THE TIME to understand the technology you're using and you will find it far more rewarding. The recommendations of our regular monthly magazine, *The Australian Commodore and Amiga Review* will make more sense - as will the rest of this publication.

You've just recently bought your home computer. The user manual is sitting there unread. Too many daunting terms? Can't quite make sense of it all?

Explaining computers is not easy. In day to day life, you'll rarely come across many of the terms or concepts of computing. So, part of the trick of understanding it all is to try and find parallels with parts of technology you do deal with every day. Surprisingly, there are many similarities. So, here goes. An easy-does-it approach to all the jargon!

Hardware vs software

● Lesson one. If you can kick it, it's hardware. Everything from the computer itself, to the many appendages we can connect to it. The nuts and bolts, silicon and plastic are the hardware. A printer, disk drive, terminal, visual display unit or plug-in games cartridge is hardware.

Commodore 128

Software is a little trickier. You can't see it, although you can see where it lives. Software refers to the instructions that a computer understands when arranged in a special order referred to as a program. The words program and software are interchangeable. Don't say "software program" - you might just as well be saying "automobile car"!

Putting information into a computer is NOT programming it. Preparing a list of commands or special instructions for the computer to execute is. Both programs and information reside safely in the computer's memory, and on floppy disks or other storage media.

Floppy disks aren't to be flopped!

● The concept compares well with the home sound system. Imagine that the record player, cassette deck, or CD player are the hardware of your computer system. The cassettes, CDs and records are equivalent to the floppy disks or cassettes used in your computer. There is one fundamental difference. As you play a track off your favourite record, the music is picked up by the needle, and played through the amplifier. The music never actually leaves the record, and you need the record to play the music.

Insert a disk into your computer, and you must LOAD or transfer the program into the computer's memory. A small head, similar to the head in a cassette player, reads the information from the disk. The program remains on the disk it was on, but a copy now resides within the computer itself. The instructions contained within the computer's memory, or RAM, are then executed.

You can see the results on your screen, or printer, but the program itself is really just a series of electrical impulses. Since the program is safely tucked away in the computer's memory, which is quite large, you can remove the disk.

Some programs access the disk, retrieving small amounts of information each time, and updating data already stored. For these programs, you must be very careful not to remove the disk until all processing has finished.

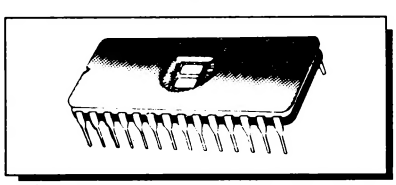
Meet RAM & ROM

● Inside the Commodore 64, specialised silicon chips perform specific jobs. Each chip is encased in black plastic, with many small legs. Inside this largish rectangular shape is the silicon chip itself, which is only the size of your smallest fingernail. Computer programs and information are stored in these chips. Two types are used in particular.

Random Access Memory is the computer's workspace. Information is stored and can be changed in RAM. RAM is divided into bytes, each of which can store one character. A character could be any letter of the alphabet, or perhaps a number or special symbol.

Each byte or character (letters and numbers) is in turn broken down into BITs. Each BIT corresponds to a transistor inside a silicon chip. Transistors may be either off or on, just like a simple switch. By combining several transistors together, it's possible to produce different combinations of offs and ons.

With eight transistors there are 256 different combinations, or ways of arranging the ons and offs. Your eight BIT Commodore has eight bits in each byte.



Silicon Chip

Larger computers use sixteen or even thirty BITs in each BYTE and can move information around quicker.

One thousand and twentyfour bytes make a KILOBYTE, or K for short. A Commodore 64 has 64 Kilobytes of RAM, or workspace. Deep inside, computers work using a number system called BINARY. In the early days, to program and use a computer you needed to know how to use Binary.

Today, only application programmers and the people who design the system software or operating system of a computer need ever deal with this counting system.

Like RAM in all respects except that it can't be erased, or written to, ROM is a permanent means of storing information. Programs required by the computer to do simple tasks are often stored in ROM. For example, to print a character on the screen, a special routine or small program is stored permanently in the computer's ROM. Any other program needing to print a character on the screen could then make use of that routine.

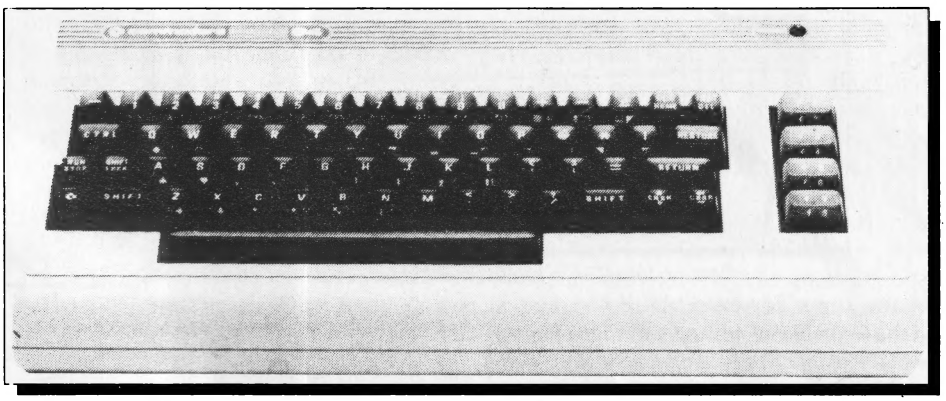
Many thousands of routines go to make up the computer's OPERATING SYSTEM or built-in languages. Commodore have designed a special ROM in the C64 called the Kernel. Many programs used the routines in this ROM to perform simple tasks such as talking to the disk drive, editing text or multiplying large numbers. Without these inbuilt routines or programs, software would take up much more space, be more expensive and more difficult to write.

Out on the peripherals

● Most computers enable you to add a variety of additional devices for storing information, printing it out, or performing special tasks. These devices are called peripherals. They combine to make a computer into a system, much the same as the various attachments to a food processor. Although the food processor works on its own, the additional plug-in items enhance its operation, just like the computer and its peripherals.

A few commonly used peripherals and hardware add-ons include:- Disk Drive, 1351 Mouse, Expansion RAM, Printer, Paddle, Modem, Joystick, Touch Pad, Monitor, Track Ball, and Parallel Interface.

A disk drive is like a combination of your record player and cassette deck. Information is stored magnetically, like a cassette. However it is stored on a disk, like a record.



Commodore C64

The disk is divided up into tracks. Each track forms a complete circle, unlike those on a record which spiral toward the centre. Tracks are then divided into parts called sectors.

A blank disk must first be formatted before use. During this operation, the tracks and sectors are labelled, and a directory is stored on the disk telling the computer where there is space to store information.

The way in which different Operating Systems label each track and sector varies. For this reason, it's not always possible to take information stored on a disk by a certain computer, and read it from a different machine.

This problem is often described as the "compatibility" of a machine. If a computer can read and execute programs stored on IBM PC type formatted disks, it is known as an IBM compatible computer. Commodore PC's are IBM compatible. The C128 can read and write C64 disks and execute C64 programs, so it is C64 compatible. However, there is no similarity between IBM disks and C64 disks, although the 1571 disk drive with the program *Big Blue Reader* can be made to read text files from IBM format disks.

However, there is more to compatability than simply getting the files or programs to the different disk format. Software written to work with one particular microprocessor will not work on a computer with an incompatible microprocessor. The microprocessor is the brain at the heart of your computer. The C64 uses the Motorola 6510. The IBM PC uses a Intel 8088. These processors are very different. Unless the program is written in a high level language, there is no easy way to transfer programs intended for one microprocessor to another.

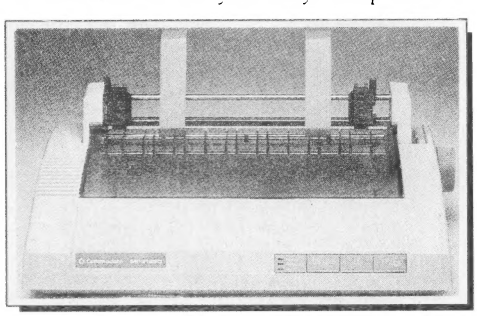
On your disks ...

● Information stored on a disk is grouped into files. Each file has a name, length, and type. A file might contain text relating to a wordprocessing document. Files may also be programs, a database, lists or special numbers.

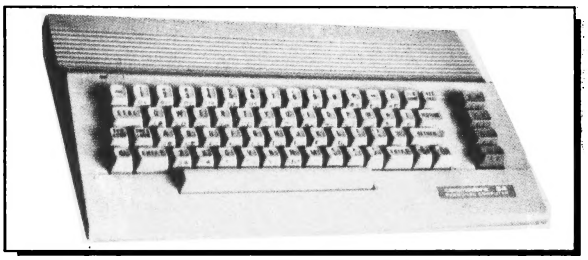
By arranging information in this way, the disk operating system knows how all the information on the disk relates. Without the file arrangement, each sector on the disk would be meaningless. Whenever a file is stored on a disk, its name is recorded in the disk directory. This is just a list of the disk's contents, including whereabouts files can be found, how long they are and what type of file it is that is stored.

If you need to know what is on the disk, it is normally possible to take a look at the disk directory. Files may be deleted or erased. When this happens, the directory entry about that file is removed, freeing space for other information. However, until the disk is written to, the information relating to that file is still scattered around the disk.

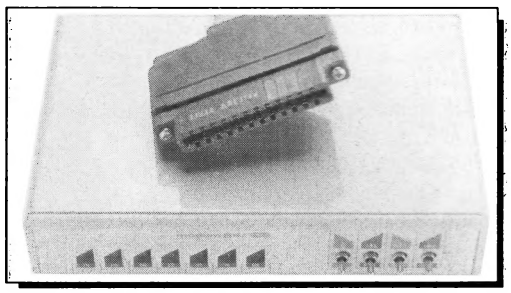
You may also copy files from one disk to another, on the same disk or even entire disks at a time. The process of getting a file into the computer is referred to as LOADing or reading that particular file. In some instances you only use part of a



Commodore MPS 1250 Dot Matrix Printer



Commodore C64 in replacement case



Nettcomm Modem

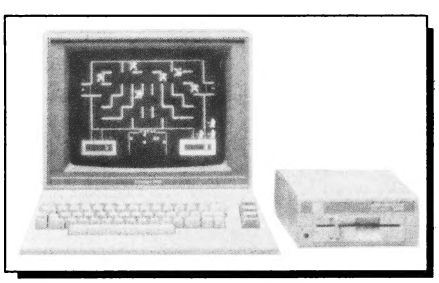
file at a time. For example, if you had a database or list of phone numbers, along with the subscribers' addresses and personal interests, the resulting file would be very large.

If you wanted information about one particular person, it would be wasteful to have to LOAD the entire file into memory. Instead, a special pointer is used to jump into the file to the right spot where the required details are stored. Only that part of the file is then read, and may be changed and updated. This is called RANDOM ACCESS.

Madam my Modem

● A modem is used to send information between computers, via telephone. Data is changed into audible beeps and tones, which is then decoded by the receiving computer. This process is known as MOdulation/DEModulation - thus the term MODEM. Communications between computers is an exciting field. It makes possible some very powerful facilities. Automatic Teller Machines are linked together using modems.

At home, a small $300 modem can enable you to talk with services offering banking, stockbroking, weather reports, TAB, hotel/motel and travel bookings and much more. Information is sent at different speeds, measured in BITs per second, or BAUD. Rates of 300, 1200 and 2400 baud are fairly common. 300 baud is about as fast as you can read, or around 30 characters per second. (See "A Hitchhikers Guide to Telecomputing" on page 22).



Commodore C64 with monitor and disk drive

Making it tick

● For a computer to perform even the simplest of tasks, it needs software. When you switch on, a special program built into a ROM in the computer, comes to life. It checks how much memory is available, what peripherals are connected, and displays a power-up message. This program is part of the computer's operating system, or group of programs that let you use the computer. Examples of operating systems are MS-DOS, Unix, CP/M, and Amiga DOS.

The word DOS stands for Disk Operating System. This denotes that the operating system is disk based. In other words, you need a special disk and disk drive to make it work.

Different operating systems require different commands to perform a job. On some small computers, the operating system is part of the builtin programming language.

A Commodore 64 has the BASIC (Beginners All Purpose Symbolic Instruction Code) programming language, and operating system stored entirely in the computer's 16K ROM. No disk or disk drive is needed. Information can be stored on cassette. On the Commodore Amiga the operating system is capable of doing several jobs at once. It also has a variety of modes of operation. Using the Workbench, commands are issued by way of a pointer called the MOUSE. Pictures and menus on the screen provide the various options available.

It's not necessary to know how to program a computer to be able to use one to the full. However, if you plan writing your own custom applications, learning to program is an essential step. A program language is structured much the same as the different languages we speak. Each has its own set of words, or commands and statements, with special rules of grammar, or ways as to how they can be combined.

Most home computers provide BASIC for you to write programs in. This language is fairly easy to get started in, and is suitable for many different uses.

Around the keyboard and screen

● The computer's keyboard and screen are an important part of any computer system. Using the keyboard, the user can write programs, enter information, and send commands to peripherals. Additional devices are also used to control the computer, such as a Mouse, Light-Pen, or Touch Screen.

Every key press is sent to a small buffer or temporary storage area. From here it is fetched as soon as the program running is ready to use it. Sometimes it's possible to type ahead of the computer. Because of this buffer, your keystrokes aren't forgotten.

The keyboard itself is much the same as a standard typewriter. It is called a QWERTY keyboard, due to the arrangement of the first five characters on the top row of alphabet keys. The keyboard we use today was actually designed to slow down our typing speed. When typewriters were first invented, typists found that they could type faster than the mechanics of the typewriter were able to cope. So the keyboard was changed to slow them down. Today, we use the same layout, despite far better arrangements being available, such as the DVORAK keyboard.

Instead of a carriage return lever, the computer keyboard has a return key, just like an electric typewriter. There's also function keys, to perform special jobs. Other keys provide the ability to stop, or pause programs, or quit out of what you're doing.

A small flashing square on the screen shows where the next character you type will appear. This is called the cursor. The screen is divided into rows and columns. On an IBM compatible there are normally 80 columns and 25 rows of characters.

Smaller home computers have only 40 columns.

Sometimes the screen display will scroll, either up or down to allow a new line of text to be displayed. Each time the display scrolls, an entire row of characters moves off the screen. Computers are also able to display graphics, by dividing the screen into individual dots instead of characters. Each of these dots is called a PIXEL or PIcture ELement.

What about graphics?

● Probably the most entertaining reason for owning a Commodore 64 is its graphics capabilities. Although you're probably thinking graphics are only good for games, they do in fact make many other programs possible. Instead of being restricted to the pre-defined character set stored in the C64's ROM, you can display just about any shape you want.

The computer screen is divided into small dots. These are called PIXELS, or Picture Elements. Each of these dots corresponds to a BIT inside the computer's memory. By switching Bits off and on, the image displayed is varied. Done quickly enough, you can even produce animation.

The number of Pixels displayable on the screen is called the resolution. Several resolutions are available, normally expressed as the number of dots horizontally by the number of dots vertically. A Commodore 64 has a 320 x 200 pixel graphics display, using two colours in every 8 x 8 square. This mode is called hires mode, or high resolution graphics. In another mode, greater colour availability is possible by halving the horizontal resolution to 160 pixels.

The Commodore 64's VICII chip can also produce small shapes. Once defined, these may be very easily moved, animated and displayed. They are called Sprites. A sprite is 24 x 21 pixels in size. They move independently of the main picture. Furthermore, collision detection between different sprites is possible. Many games use these facilities. Sprites are one of the most powerful features available to the games designer. Most arcade quality computers allow at least eight, if not 16 different sprites on the screen at one time.

And some colour too!

● Your Commodore 64 can generate 16 different colours. Although, by alternating between two colours every second pixel, it is possible to give the impression of shades or mixtures of colour. More powerful computers such as the Amiga also allow a variation in the hue or intensity of each colour.

Pictures may be recorded by computers digitally. Using a video camera, the image is turned into a series of dots that are either off or on - corresponding to the computer's ability to store information. The resulting picture looks very similar to newspaper quality photographs.

My SID chip

● Computers can synthesize music in much the same way as an organ or professional synthesizer. Sound is formed by vibration. This action can be simulated in the computer, along with the timbre and pitch of each note. More powerful machines have several voices enabling them to play a number of different notes simultaneously.

Music can also be recorded into the computer's memory digitally, just like a Compact Disc. The result sounds very much like normal music played from a record or cassette. The quality of digitised music depends on the amount of memory used to store the sample. The more memory used, the better the quality.

It's also possible to connect an external keyboard to the computer using a MIDI interface. Information sent from the keyboard as music is played is then able to be recorded using the computer. Later on, the music can be replayed and a new track recorded over the top of the first. Professional musicians make strong use of these facilities.

Computers cannot write the music for you, but they can sure make writing music far less laborious. A single musician has at his disposal many powerful facilities normally only possible in expensive recording studios.

Software is available enabling budding musicians to cut and paste notes onto a stave. The result can be played on the computer or printed out into sheet music.

In the Commodore 64 the SID chip, or Sound Interface Device, produces three voice harmony which is as good as some low end synthesisers costing twice the price. Dr T's Music series offers plenty of power in this area - get hold of *Electrosound* too if you can.

On the desktop

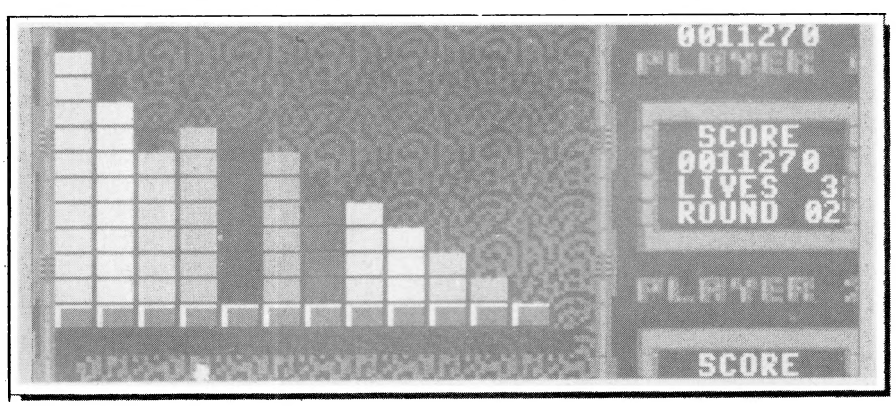
● The biggest buzz word of the eighties was "desktop". If you could do it on a desktop it was all the rage. Desktop publishing, desktop video and desktop operating systems with fun little gadgets like calculators, notepads and the like.

Your Commodore 64 is well catered for in the desktop environment by *GEOS*. See the article on *GEOS 2.0* for further information.

In essence the term "desktop" simply means everything happens on screen, in such a way that previously manual tasks are replaced. In desktop publishing for example, you no longer need to cut and paste columns of text and add pictures later. Everything is done on the spot - your finished page looks finished on screen and comes out of your printer ready to go to the printers!

The future of the C64

● I am glad to see that there is still a place in the market for the C64. It is now the grandfather of the Commodore range, but is a wonderful machine to start with, providing the first time user with a good grounding in the basic concepts of contemporary home computing. ❑



Arkanoid (Entertainment)

A guide to Computer terms and keyboard characters

● EVER WONDERED how to explain which tricky symbol you mean to a fellow Commodore user? Wished you sounded like you knew what you were talking about? Here's a few tricky symbols, along with the correct name for each. Now you can sound like a real expert. We all know what an expert is, right? (An "ex" is a has been, and a "spurt" is a small drip under pressure.) So now you know.

!	-Exclamation mark
@	-At sign
#	-Hash
$	-Dollar
%	-Percentage
^	-To the power of or CTRL
&	-Ampersand
*	-Asterisk or Times
(	-Left round bracket
)	-Right round bracket
[	-Left square bracket
]	-Right Square Bracket
{	-Left curley bracket
}	-Right curley bracket
"	-Inverted commas
'	-Single comma
:	-Colon
;	-Semi-Colon
,	-Comma
.	-Full-Stop
/	-Forward slash or divided by
\	-Reverse slash
-	-Minus or dash
+	-Plus

● USING A COMPUTER means using a lot of words which are foreign to most people. In fact, most people only use about 600 words on a day to day basis - so it's little wonder all those new computer terms can be hard to come to grips with.

Why is there so much terminolgy to know? Well, it makes sense to use a brief term rather than the full explanation every time. For example "DISK" saves you having to say "Magnetically charged particle coated plastic platter" ...

Abort: Panic! Stop an operation during mid flight. Abort a file transfer would mean prematurely stopping the process.

BASIC: Beginners All Purpose Symbolic Instruction Code. A language used for programming home computers, similar in some areas to English. BASIC is built in to the Commodore 64 in a 8K ROM.

Characters: The letters, numbers, punctuation and other special symbols produced by a computer.

Cursor: Square or line, usually flashing, which marks the position that the next character will be printed at.

Disk: A round magnetically coated flat platter for storing information on magnetically.

Expansion: The ability to add additional hardware to the computer, such as memory (RAM).

Joystick: Controller for games, drawing and graphics programs which has five switches (sometimes more). Up to nine directions may be read.

Keyboard: What you type on.

LIST: Display a program in BASIC. Also lists a disk directory after the LOAD"$",8 command.

LOAD: Transfer a program from a storage device such as tape or disk, to the computer.

Monitor: Screen or display for viewing the computer's output. A monitor is of higher quality than a normal colour television. Text based applications such as wordprocessing are best carried out on a monitor.

Port: A socket or connection for adding a peripheral such as a joystick. There are two joystick ports on the right hand side of the computer.

RAM: Random Access Memory. The work space of your computer. All information in RAM is lost when you switch off the power - which explains why you need some form of storage such as a disk drive.

ROM: Read Only Memory. Similar to RAM, except permanent. ROM cannot be altered, and remains intact even without any power. The Commodore 64 contains two 8K ROMS.

Return: Also known as enter. Pressing this key tells the computer you have finished typing.

Screen: Same as monitor or display or television.

Syntax: The grammatical arrangement that the computer understands. A syntax error means you've made a typing mistake or entered something the computer doesn't understand at all.

SAVE: Store a program on file on disk, tape or any other form of storage. ❑

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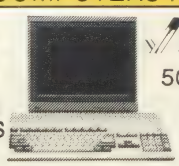

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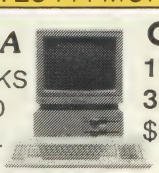

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Getting into Graphics with Animation Station

by Andrew Farrell

WHEN THE COMMODORE 64 was first launched its graphics capabilities were one of the most heralded improvements in home computer technology. Indeed, it remains the most inexpensive, reasonable quality graphics computer on the market. With a resolution of 320 x 200 using 16 colours it is well suited to drawing and design for the home user without the necessity for an expensive colour monitor.

Back in the early days, Micro-Illustrator paved the way for the Koala Graphics Tablet to establish itself at the standard by which other programs were measured. In the heyday of the C64, there was at least a dozen excellent programs available for painting. One of the best was the *OCP Advanced Art Studio*, which unfortunately has recently become unavailable in Australia.

Nevertheless there is still a good selection of packages, although some of these may only be available through User Groups. Apart from *GEOS*, the Animation Station would probably be the best alternative to some of the earlier successes. The package makes use of the original Koala Pad technology now licensed to Suncom. The software which enables the user to record his designs on the computer is the same, exactly, as *Blazing Paddles*. This program has been available for some time and is a tried and tested product. So, let's take a look and see just what you can do with *Blazing Paddles* and the touch tablet.

Inside the box

● Inside the hefty box is a disk, small 32 page manual, the touch tablet and stylus. The tablet has a grid on it and four buttons - two on each side enabling either left or right handed people to use it. According to the box, the Animation Station now works with the Commodore 1525, MPS 801, 802, Gemini 10X, 15X, Epson 80, 100, Okimate and with a Ruscard or Cardco Interface. Quite likely it would work with other interfaces such as the Xetec Interface and other printers which are compatible with the above listed.

Main screen

The beauty of this product is that the touch tablet can be used with various other programs, including *GEOS*. It is a very intuitive method of inputting designs into the Commodore 64. The pad allows you to work in much the same way as you would when drawing normally.

A pressure sensitive surface, with a somewhat useless grid pattern, is activated by a blunt stylus instrument. This returns a value to the paddle port, joyport one, on the Commodore 64. The signal is actually a voltage range which when converted by the analogue to digital converter in the C64, returns a value between one and 255. Using this method, the tablet enables a pointer on screen to be moved smoothly and artistically. Unfortunately, due to the nature of the pad, some jitter is likely. As a menu selector, the pointer method is especially easy to understand, and is the basis for more advanced operating systems such as that found on the Commodore Amiga.

Main menu

● Once you've booted up the software you'll be confronted with 18 menu options. Each of these options is represented by an icon and can be selected by simply positioning the pointer over the icon and pressing one of the buttons on the pad. When the pointer is at the top left corner of the pad, it is not necessarily at the top left corner of the screen. You may find that only an area within the pad actually actuates the pointer on the screen.

From the main menu you can carry out just about all of the available options. Anything from clearing the screen, drawing a filled or hollow oval or box, sketching, drawing dots (in other words a spray paint type effect), lines, joined lines, you can choose different colours, fills, sprays, you can zoom, select to print the picture, load a picture from disk, you can also access various shapes and position text on the screen.

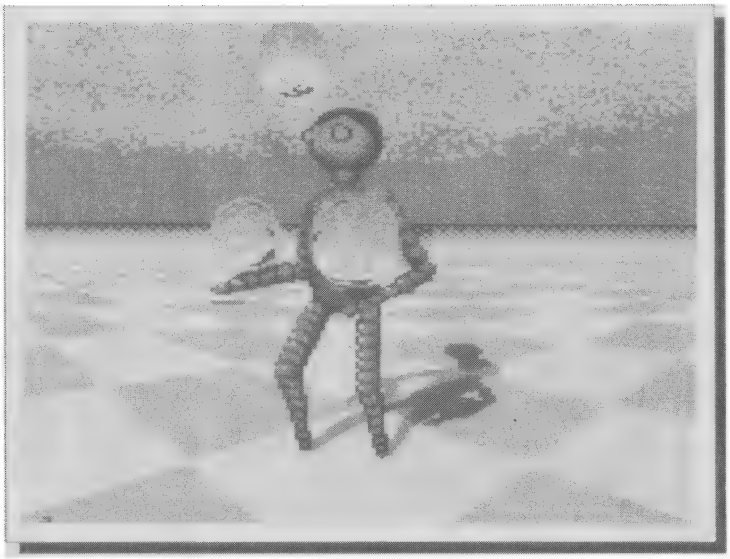
It's pretty easy to work out what all these options do. However there are a

few hidden intricacies which require a little extra reading. Colour selection for example. Here there are two possible modes of operation. Bit Optimization and Register Selection. When you choose the colour function you can then select which mode to work with. Sixteen boxes display the possible colours available, and an additional two boxes allow you to then select two colours which you may optionally mix if required.

Having selected which colour you wish to work with the next step is to choose a brush, there are eight in all. Anything from a single one dot brush up to a large square. When you are drawing lines it's good to keep in mind that best results are obtained by using a small brush as the larger brushes produce a rather ragged look. The sketch option allows you to actually draw in freehand as if you were drawing on a piece of paper. By careful use of the stylus and applying constant pressure reasonably good lines can be obtained. However, often the result is a little bit jerky and will require additional work in order to clean it up.

You can also draw boxes very easily and fill them with a solid colour or texture as chosen from the colour option. Some care must be taken to ensure the fill is not going to leak at some point. You may also draw ovals or circles using the oval function. Filled ovals are also possible. By adjusting the height to width ratio all different size convoluted ovals or circular shapes may be constructed.

To give texture or solidarity to an object the dots option may be used, however for the most interesting effects, the airbrush function is excellent. As the name suggests this facility simulates a real airbrush, literally spraying colours one on top of the other. You can move backwards and forwards over an area to gradually increase the amount of colour sprayed.



Juggler Animation

Rubber banding

● When drawing ovals, boxes or lines a rubber-banding effect takes place enabling you to see whereabouts your draw will be positioned. Using the multiple lines option it's easy to draw polygons of any size or nature.

Once you've got the rough for your drawing in place, it's time to go in with zoom mode and pretty the drawing up. In this mode approximately one third of the screen becomes a large window magnifying the area at which the cursor was positioned. You can move the zoom lens around by positioning the stylus on one of the edges of the pad in the direction to which you wish to move.

One thing to watch out for is the unusual arrangement of colours on the Commodore 64 when using multi-colour mode, which may be disturbed when you edit an image at the pixel by pixel level.

Of course if you're preparing different types of drawings on a regular basis you'll soon find various shapes which you often use. Animals, trees, cars or people can be constructed as shapes and saved into a Shapes Library. These may then be manipulated, flipped, rotated and edited prior to being positioned in a new picture.

Fancy writing!

● For presentation work or building educational pictures the text option is very useful. You enter the text on the

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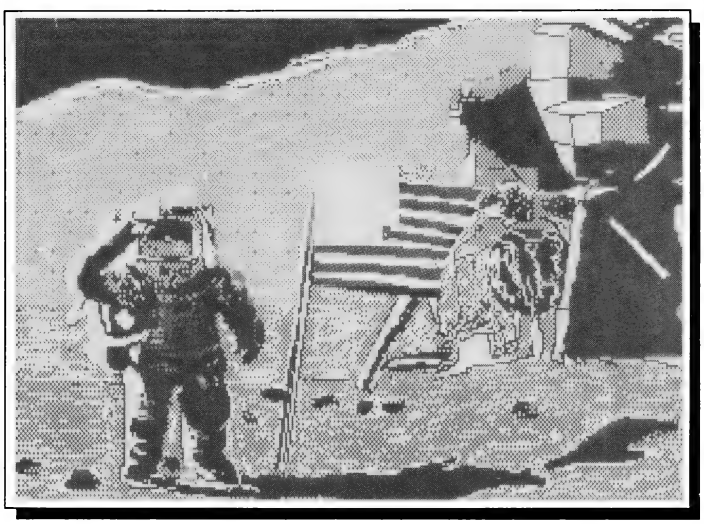
screen in the same fashion as you would into a wordprocessor using the keyboard and the delete key will delete characters. Once you've finished, press return and the text is permanently written to the screen.

The end result of all your hard work can easily be manipulated using window. A window may be made around any portion of the screen at which time two additional options will appear, cut and paste. A selected area may be copied to another part of the screen, saved to disk or you can clear the screen and repaste it on by itself. You can also add it to other pictures.

One of the best parts about Animation Station is if you make a mistake you can always undo it using the undo button on the pad. When you've finally got it right and there's no more mistakes, it's time to save it to disk. The disk option allows you to format a new data disk ready for pictures. I found the menu facility was a little clumsy, however once you get the hang of using the pad it's relatively simple to select file names and other options.



Design Lab allows a number of possible character sets to be used from the Disk Utilities screen. You can load a new character set for use when operating the text option.

And what good would all your hard work be if you couldn't get a hard copy? The printer allows you to produce printouts of your picture in either positive or negative format. A variety of different printers are supported.

BASIC support

● At the back of the manual there is a interesting section dealing with using your pictures in your own basic programs. A program displaybas is included on the disk to enable you to work out just exactly what must be done. You can even import Koala Pad pictures into the Animation Station software to edit them for later use. For Commodore 1526 printer owners a separate program, Dump 1526, enables you to print graphics too.

Overall the Animation Station is a good, middle of the road graphics package which, thanks to its availability and very useful touch tablet, is probably the most functional graphics program available at this time. Even if you can get your hands on better software, the tablet alone is well worth the price. The tablet should work with any program that worked with the Koala Pad, a trackball or paddles.

Thank you to Computermate (02) 457-8118 for rushing over our review model at the last minute - RRP $139. Available from most good computer stores.

Best Points
- Icon driven menu system
- Easy to use
- Zoom mode
- Text and Shapes

Worst Points
- Jitter when drawing
- Poor feel to pad buttons
- Software is a little dated

Graphics Glossary

Clip-Art: Small clippings or shapes cut from larger images used to paste into larger designs.

Cut & Paste: Literally emulate the process on screen to the image displayed of cutting with scissors and then pasting with glue.

GEOS: Graphic based operating system using windows, icons and a pointer. (See article on page XX.)

Graphics Tablet: Pressure sensitive input device returning X, Y co-ordinates to the software.

Icon: Picture representing an available process, or resource such as a disk or printer.

Interface: Device which enables otherwise incompatible hardware to communicate. Especially used between Centronics type parallel printers and the Commodore serial port.

Joyport: Connection on the right side of the C64 allowing input from various hand controllers. Joyport one enables not only joysticks, but paddle type devices returning a variable voltage range or X and Y value.

Menu: List of choices.

Pixel: Picture Element or BIT or dot on the screen.

Resolution: The amount of detail possible. Normally this is referred to as an X by Y resolution of pixels or dots.

Window: An area on the screen which may be worked within independently. Scrolling, editing and other action do not affect the rest of the screen. ❑

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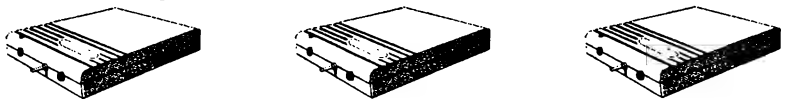
Which Cartridge?

Expert 4.1R vs Super Snapshot V4.0

by Eric Holroyd



IT SEEMS TO us here at *Australian Commodore and Amiga Review* that these two units are the front runners in the field of all-purpose cartridges for the Commodore C-64. We don't hear much of the others of their type nowadays, and it appears that "the best have outlived the rest." (Our old favourite, the Action Replay V is very hard to come by.)

Both units have a vast range of useful utilities including: Backup of memory resident programs; Machine code monitor; Graphics capture: Disk drive speedup; Sprite functions; Printout facilities; DOS wedge of "shorthand" disk commands.

Both are reasonably priced and good value for money. The two cartridges have been previously reviewed in the pages of the *Australian Commodore and Amiga Review*, along with updates of both as they've been released.

It's interesting to note that these two "survivors" are the only "upgradable" units of their type, although each unit does it rather differently.

The Expert itself is a programmable cartridge which gets its program code from disk with the user selecting the required function to be loaded into the cartridge. Super Snapshot, on the other hand, has all of its code on a ROM chip which is replaced at upgrade time with a new ROM.

Manual revisions are supplied with each upgrade also.

In the belief that many readers will already have knowledge of both products via the reviews already published (and newer readers can get the relevant back issues by calling 02-398-5111) I'll just get straight onto a listing of some of the features of each cartridge. See "Cartridge F eatures".

Accounts and invoices from goods suppliers sometimes carry the legend "E.& O.E.", which means "Errors and Omissions Excepted. I should invoke the same thing here as it's quite a task going through all the wonderful features on offer from each cartridge.

Sharp-eyed readers will have noticed several "Optional" brackets against some of the Expert's features in the list above. These are functions available on the separate Utilities Disk which is available from the same supplier.

Super Snapshot has one optional extra listed, and that is the SlideShow Maker. This is well worth getting as it lets you set up a show of a series of pictures which will load in automatically with several different "wipes" and "fades" to choose from, display for whatever length of time you wish, and also have an optional scrolling message in your choice of screen position and in any one of nine fonts.

Other Super Snapshot utilities, such as the parameter copier, bootsector maker, Turbo*25 disk creator etc, come on the System Disk provided with the cartridge. The Sprite Editor is on the system disk and is called SS.SED. There's a slideshow on the back of this disk. I got a second disk with my V4.0 Super Snapshot too, it had several extra utilities for graphics manipulation (such as OCP Convert), colour printer drivers, and a "Readme" file to explain it all.

I'm not a machine code (or even a BASIC) programmer so I can't really tell you too much about the operations of each systems ML Monitor. I know a couple of 64 hackers who swear that the Expert's monitor is the best thing since sliced bread but then again I can think of others who reckon Super Snapshot's monitor is the one to use. One thing's for sure, the manuals for both units have long lists of monitor functions and they both seem pretty comprehensive to me.

What it all boils down to is that it's up to you, the buyer, to evaluate all the features and decide which one will suit you best. As regards all the other functions such as disk drive speedup, DOS wedge, screen copy etc, both units perform well with one outshining the other on one feature, only to be beaten by the other unit on a different feature. For instance, with screen printouts Super Snapshot will print EVERYTHING! Sprites and all, and in colour if you have a colour printer.

The Expert shines in the ML Monitor with its bi-directional scrolling so I guess those are the kind of things you'll have to consider for yourself when deciding which one to buy. As I said at the outset, each unit is upgradable and it seems to be a constant "battle" on the part of the programmers to get more and better features onto their cartridge updates.

The Expert came out with V4.1R some time in mid '89 whilst Super Snapshot's V4.0 was released a little while earlier. I don't know what The Expert programmers have up their sleeve for future updates (although in the V4.1R manual they ask users to write in with "wish lists", which is nice).

I do have a little "sneak preview" of some of the things that Super Snapshot users have given as their "wish lists", either by mail or via the BBS number, that they'd like to see on V5.0 of their favorite cartridge. This is apparently still quite a little time away, but could include: REU support for file, disk, and nibble copiers; sequential file reader; character set editor; sound sample monitor; terminal program with 300 to 9600 baud support (and 80 columns for C-128); new Games Master feature with joystick port swap, autofire, infinite life generator etc; enhancements for Screen Copy (with more formats supported); save/load picture to/from disk; and more...

I can't say when the Super Snapshot V5 upgrade is to be released. If this one is to be your choice you'd be justified in getting V4 now and updating when V5 comes along. It's really not worth holding out for when the upgrade chip is so easily fitted and you'd be able to enjoy V4's features in the meantime.

As to The Expert's upgrading, all you have to do with that unit is to load in a different disk! That's all there is to it as all of the operating systems are loaded in from software as I said earlier. The most

Cartridge Features	Expert	Super Snapshot
Copiers		
Backup all memory resident programs	Y	Y
Backup to TapeYN		
Cartridge needed to reload backups	N	N
File Copier & File Utilities	Y(Optional)	Y
Full Disk NibblerNY		
MultiPart games transfer from tape	Y(Optional)	N
Parameter Copier	N	Y
Two drives supported	N	Y
DOS		
BASIC Plus (extended language)	N	Y
CBM DOS commands supported	Y	Y
File Compactor	Y(Optional)	N
Reset and OLD function	N	Y
Specialty Keys	Y	Y
Wedge (Shorthand commands)	Y	Y
Drive		
1571 D/S mode for C64	N	Y
1581 Support	N	Y
Disk Drive Monitor	N	Y
Fast Load/Save (Disk)	Y	Y
Make AutoBooting Disks	N	Y
Software drive number change	N	Y
Speedup disk functions	Y	Y
Editors		
Character Editor	Y	N
Track & Sector Editor	N	Y
General		
Cartridge "invisible" to computer	Y	Y
Cartridge disable switch for 128 users	N	Y
Utility disk included	N(Optional)	Y
Joysticks		
Autofire	Y	N
Swap	Y	N
Make Fast Loading Disks		
Independent of cartridge	Y(ROCKET)	Y(TURBO*25)
Monitor		
Bi-directional scrolling	Y	Y
Enter/leave monitor anytime	Y	Y
Enter POKES (cheats etc)	Y	Y
DOS wedge available in monitor	Y	Y
Full machine code monitor	Y	Y
Omit leading zeros	Y	Y
Print to screen/printer/disk	Y	Y
Pre-programmed function keys	Y	Y
Resume program without corruption	Y	Y
Support unlisted opcodes	Y	N
Screen Pictures		
2mhz fast printing with 128/1571	N	Y
Color printer drivers	N	Y
Convert between formats	Y	Y
Different sizes of screen printouts	N	Y
Hardcopy of screen	Y	Y
HiRes & MultiColor support	Y	Y
Make picture displayable from BASIC	Y	N
Print screen and resume program	Y	Y
Print sprites	N	Y
Save screen to disk & resume	Y	Y
Screen viewer	Y	Y
Slideshow maker	N	Y(Optional)
Sprites		
Editor	Y	Y
Disable	Y	Y
Extended Lives	N	Y
Killer	Y	Y
Immortaliser	Y	Y
Monitor	Y	Y
Re-enable	N	Y

revolutionary thing about Expert V4.1R is that the user may now swap between menu functions without switching off and starting over, as was the case with previous versions. That's a major advance and one that's been welcomed by Expert users everywhere.

It's a difficult decision to make, due to so many excellent features in each cartridge, but I'd have to plump for Super Snapshot as my own personal favorite. I find the features so easy to use and, as I got the optional switched version, I can leave the cartridge in place in the C-128D permanently.

I'd be interested to hear a Machine Code programmer's comparison of the two ML Monitors though. Perhaps we can persuade one of our readers to put pen to paper on that one for a future issue? Anyone interested should contact the Editor forthwith (or pascalwith whichever comes sooner). ❑

The Expert Cartridge RRP $129.95

Available from: **Hardware Peripheral Distributors,**
Phone: (08)252-3300 Fax (08)252-4755
and **Home Entertainment Suppliers**
Phone: (02) 533 3055

Super Snapshot V4.0 RRP $119.00

Update ROM and optional switch TBA.
Available from: **Computermate Products,**
Phone: (02)457-8118 Fax (02)457-8739

Action Replay V

Available from: **Pactronics,**
Phone: (02) 748 4700
For a list of other cartridges available, see the Software Guide on page 68.

The way of the 128

by Eric Holroyd

WHEN COMMODORE announced the release of the C128 I was one of the first in line for one. I bought the C128D and apart from a few problems with some of the fast loading routines built into specific C64 games disks, I've never had any major hassles with it at all. I added a second 1571 drive for use as a data drive and a Star NX-10 printer.

All this has proved to be a most successful outfit which compares very favourably price-wise with the IBM clones and which will do all I ever ask of it (and a lot more besides). The concept of a multi-purpose computer appealed to me, and for those who don't know, the C128 has three distinct modes: C64, C128, and CP/M.

Firstly, having a complete C64 built in meant that my extensive 64 software library could still be used. Then the exciting new Basic 7.0 language in C128 mode offered so much by way of new (and simpler) programming commands for Graphics and Music as well as easier ways to manipulate Sprites etc.

What had taken a whole page of code on the C64 could now be done in two or three lines. I'm not a programmer myself but I've had a lot of fun playing around with program code and tips from US magazines such as *Run, Commodore MicroComputers,* and *Ahoy.* One of these published a routine to draw a Mickey Mouse head and then colour it in. Analyzing that very short program (only a few lines!) after watching it do its stuff was very interesting. It was mostly done with a series of Circle commands and was extremely effective.

The C128's third mode is CP/M, which is an acronym for Control Program for Microcomputers. This was a popular operating system or "native language" of computers before MS-DOS became so popular. There are literally thousands of Public Domain CP/M programs available which will run under this system on the C128. To use CP/M on the C128 you need to "load in" the operating system from disk in the same way that some IBM machines need you to "put in the DOS" or Amiga users load WorkBench. When that disk has loaded you're ready to use the many games, business and educational programs which can be obtained from various PD suppliers advertised in the popular magazines.

I must confess that I never really got into the CP/M mode much, although I did play around with *WordStar* a little before I got into word processors written specifically for the C128. I found it to be quite heavy going (I'd previously been using *Easy Script* on the C64) and didn't find its screen layout all that easy to work with. If I were to go back to it now I'd probably find it easier as I've learned a lot more in the last couple of years by playing around on other machines and programs. Maybe it was just my own inexperience that caused me to think that CP/M and *WordStar* weren't all that user friendly.

Anyway, there are many C128 owners who do use the CP/M system and we'd like to hear from some of them here at *Australian Commodore and Amiga Review.*

"..over a million C128's sold"

● With over a million C128s sold there is a good market for quality software for it, although we still hear some people whingeing that "there's not much for the C128". True there isn't much in the games segment in 128 mode apart from things like *Rocky Horror Show, Kikstart, Thai Boxing,* and just a few more, but there's a really great range of "productivity software" in the Graphics and Business areas.

Berkeley Software's excellent *GEOS* system has been available for C128 for a long time now and is a completely self contained operating system with many programs that run under it. There are *GEOS* application programs covering art, word processing, database and desktop publishing applications. They're mostly interactive with each other. Indeed, many people use their C128 wholely and solely with *GEOS* and don't worry too much about its other features.

Screen from Spectrum 128 graphics program

Although I have an Amiga A1000 and a fair bit of software for it I still prefer to use the C128D for my writing and data storage. For the latter I use *Superbase* and have yet to find anything that even comes close to it for power and depth. It's programmable via its own language (like an extension of BASIC) and can be made to do very complicated tasks with datafiles whilst you go and have dinner or something.

I've used it for a long time to catalogue magazine articles of interest and if I want to get a printed list of articles on "Using Function Keys" for example I can get *Superbase* to compile a list of such articles, along with the author's name and the relevant magazine issue, then print it all out for me and ALL completely unattended. Brilliant.

It's also fully compatible with the *SuperScript* word processor and both may be in the C128's memory at the same time to allow transfer and manipulation of data between them.

For my own writing chores I use one of my three favorite word processors: *Fontmaster*, *Fleet System* and the *Write Stuff*. The first one is probably my all-time favourite. It has a good spell checker, and it also lets me do some pretty fancy stuff on the C128 by way of using nine different fonts (from a choice of around fifty on the program disk), in three heights, all can be expanded and/or italicized, and graphics may be inserted anywhere in the text.

Fontmaster's program disk includes: a converter program to use *Print Shop* graphics and HiRes pictures (such as those produced with *Doodle!*) within *Fontmaster* itself; a text translator to let you use files from other word processors; and functions to create your own Fonts and Character Sets.

I've done a "dummy" printout here to show some of the things that the C128 is capable of when using a program such as *Fontmaster*.

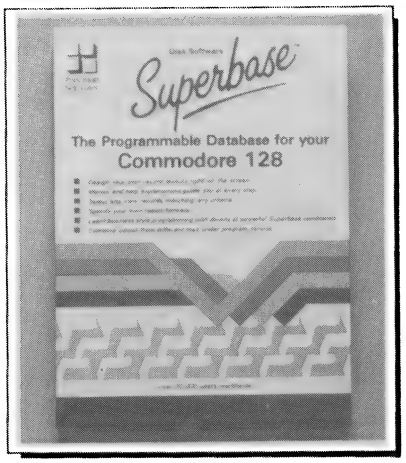
The other two word processors I mentioned above are very easy to use and have their own special features too. Taking it for granted that all three have Headers, Footers, Superscripts, Subscripts, Search & Replace, Cut & Paste, and all the nice refinements a writer likes to have at the fingertips, each one has little extras that prompt me to use that one when I want to do a specific task.

The Write Stuff has an "Outliner" for example, which is used to jot down ideas for stories, speeches etc. Topics, subheadings, sub-sub-headings etc let you work on each section of the thing you're working on and then put it all together in the word processor to print it out. It's very good.

Fleet System has both a Spell Checker and a Thesaurus, both of which are fast in operation. If I want to find an alternative to a word I've already used several times in an article I can call up a list of such words in the Thesaurus, find the word I want, then have the program exchange it for the word in the specific bit of text. It'll also give me Synonyms ("like" words) or Antonyms ("opposite" words) and is a great help. The only thing I can't do with Fleet System is to print "proportionally".

Fortunately, many printers now have a "proportional" feature which will do this for me so it's not a problem. Most of the Star printers have this feature and I've always found it to be a great advantage in presenting a business letter properly to be able to use proportional print. It doesn't look as if it was "printed by a computer" then if you know what I mean.

There are many other fine C128 programs available through a variety of distributors, ComputerMate Products and Briwall are two that spring readily to mind, and it's worth checking out all the new things that are now available for C128 in the areas of desktop publishing and graphics in general.



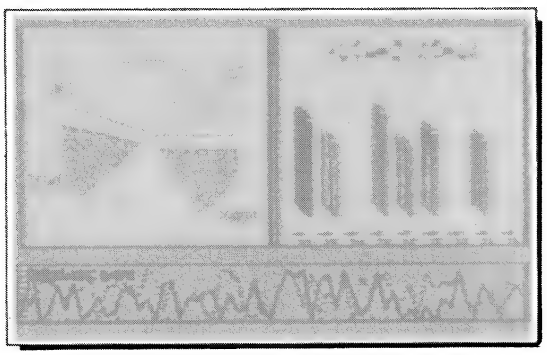
Superbase 128

A step forward in graphics

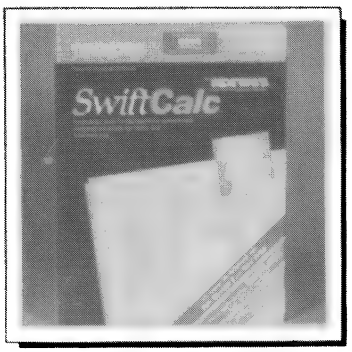
● Talking about graphics, the effects now possible in 80 columns with Basic 8 have to be seen to be believed!It's unfortunate that C128 owners don't seem to be getting much support in the peripherals area from Commodore Australia. We haven't been able to buy a new 1571 drive for over two years now as there just hasn't been any of these fine drives imported.

A great pity, as it's fully compatible with the C64 too. Then again, we've never even had the opportunity to buy a 1581 drive to take advantage of it's greater storage capacity and increased speed. It uses the sturdier 3.5" disk too (like the

Fontmaster 128



Printout from BASIC 8



Timeworks Swiftcalc

Amiga) which is a much better idea all round. Some owners have imported them direct from the USA and report good results.

The other thing that lots of C128 owners have on their "wish list" is the Ram Expansion Unit (REU). I'm not sure if Commodore did make these available for a while, but no-one seems to be able to find one available to purchase anywhere. All this is sad really, as the C128 is a fine machine and much of the software I've already mentioned has been written with 1581 and REU capabilities built in. A C128 thus fitted up would be a great machine for a small business. It would have the capability to database customer lists; print letters, mailing labels, posters and fliers; design house and office layouts via readily available CAD software; and perform most of the mundane business chores with little fuss. The big plus with the C128 in this situation is that it also has a huge amount of games and leisure software for when the day's work is done.

I realise that the Amiga is the computer currently getting the "big push" from Commodore's advertising department, and I also know enough about business to realise that fast moving items help the cash flow. Nevertheless, I think that REUs and drives for C128 would sell here (try ringing for a 1571 drive second hand in the Trading Post to see how fast they sell!).

In any event, buyers of a particular computer are surely entitled to a modicum of continuing support? All of this is discussed by one Joe Griffin in an article entitled "Vapourware" in the September '89 issue of the UK magazine *Commodore Computing International*. This is an article about Commodore products advertised or "press-released" over the years which never materialized and have thus became "Vapourware". One interesting point that Joe raises is the rumour of "a third edition of the C128D together with a matching C64D, both having a built-in 1581 drive". Wouldn't that be nice?

Talking about rumours: The excellent *INFO* magazine has an interview with Loren Lovhaug in their May/June '89 issue. This guy is the publisher of *Twin Cities 128*, which is the only magazine devoted entirely to the C128. At the head of the interview there's a disclaimer to the effect that the views expressed are Mr Lovhaug's and do not necessarily reflect those of the publisher. (I suppose that applies to this little lot too!)

Anyhow, this was a very interesting interview as Loren is a dedicated C128 user who keeps his ear very close to the ground for news of his favorite computer. He spends a lot of time on the phone to Commodore Business Machines and seems to think that the C128 is "not in their current build plan". He feels that it's "very likely that no more C128s will ever be made". His magazine, *Twin Cities 128*, will continue to be produced whether or not CBM discontinues production of the machine "because it's supported by subscribers, not advertisers".

He's currently trying to get CBM to appoint someone (and he's nominated for the job) to provide after-market support for the C128 with him doing the necessary liaison with CBM USA on behalf of C128 owners everywhere. He also wants CBM to license the rights to make peripherals to third party manufacturers so that users will still be able to buy the hardware that CBM no longer wants to handle. He also makes the point that CBM should try and generate a little goodwill with owners of previously marketed computers if they want them to eventually upgrade to a machine carrying the same brand name.

Good point, and he further suggests that owners write to CBM telling them they need more support and that they'd be more likely to buy another CBM product if such support was forthcoming. All in all, this is a very good interview with lots of interest for C128 owners. The magazine seems to be well worth subscribing to, being specifically dedicated to the C128, and I'm going to investigate that for my own use.

You'll probably gather from all this that it'll be a long time before I get rid of my C128. It's much too useful a machine and I'm looking forward to using it for a long time to come. I suspect that a lot of other satisfied owners will feel exactly the same too. ❑

Companies mentioned in this article include :

Australian Commodore and Amiga Review,
21 Darley Road, Randwick, NSW 2031
Phone (02)398-5111

Briwall,
PO Box 9,
Rivett, ACT 26111.
Phone (062)880-131 Fax (062) 880-337

Commodore Business Machines,
67 Mars Road,
Lane Cove, NSW 2066
Phone (02)428-7777

Commodore Computing International,
40 Bowling Green Ln,
London EC1R 0ne,
UK

Computermate Products,
9 High Street,
Mount Kuring-gai,
NSW 2080
Phone (02)457-8118 Fax (02)457-8739

INFO Magazine,
123 North Linn Street,
Suite 2a, Iowa City,
IA 52245,
USA

Star Micronics,
Unit A 107/115 Asquith Street,
Silverwater, NSW 2141
Phone (02)748-4300

Twin Cities 128,
PO Box 11587,
Minneapolis,
Mn 55411, USA

Would you rather keep pace?

Or keep ahead.

The reviews of the Amiga 2000 have been overwhelming in their praise.

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S M A R T E R .

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Sherlock Super Creditors
C128ers get down to business

WHEN COMMODORE released C128/C128D in 1985 it was an instant success. Many C64 users were ready to upgrade their computer systems, without having to dispose of all their C64 software. These new C128 machines were twice as fast as the trusty old 64's and boasted a double capacity disk drive and an 80 column output as well as the ability to run the majority of C64 software. If you had access to CP/M software titles you could run that as well.

Unfortunately software designed to utilise many of the enhanced features of the 128 mode did not eventuate until more recent times. You now have a choice of many wordprocessors, databases, and spreadsheets.

You only have to look at the entire *Pocketfile* series for the 128 to appreciate to power this machine can generate with good programing. Unfortunately the small business accounting or home accounting field was sadly lacking in good quality, if any software. This is about to change!

In the March edition of *Australian Commodore and Amiga Review* last year we reviewed an all Australian product called *Sherlock Super Debtors*. This package has been very well received. The follow up products, *Sherlock Super Creditors* and *Sherlock Super Ledger*, are currently being released onto the Australian market.

C128 features supported!

● *Super Creditors* is not a C64 program modified to run on the C128 machines, but is a package designed from the bottom up to take advantage of all the features the 128 has to offer.

One of the most unique features is the way the program takes advantage of the additional video ram in the machine. The programmer has placed a Diary function and a Pop-up Calculator in this unused part of memory. At any point in the program simply press the help key or linefeed key and instantly these functions will appear. The calculator is easy to use and if you press the wrong key sequence, an audible tone will sound, whilst the correct key presses make a 'digital' type sound. I really appreciated this excellent feature because I can never lay my hands on my calculator when I need it. This feature is in all of the Sherlock small business packages.

Sherlock Super Creditors can also take advantage of expansion memory if fitted. The C128 can be expanded by 128K, 256K or 512K increments. That is by using either the 1700, 1764 or 1750 RAM cartridges. If any one of these cartridges is present when the *Creditors* program is 'autobooted', the program will detect its existence and load both parts of the *Creditors* into memory. This function is totally automatic, and is commonly known as 'AUTO CONFIGURATION'. If RAM is not available the main program will load and begin execution.

Most day to day functions are contained in the *Creditors* main program. End of month functions and some reports are in the reports program. Having the second program in RAM reduces the usual load of 9 seconds to one fiftieth of a second.

The use of RAM will allow other programs in the Sherlock Super series of small business programs to 'co-exist' in external memory. That's right, a type of multitasking, so to speak. You can load the *Creditors* programs into memory and then load *Sherlock Super Ledger* also into memory by selecting the General Ledger option from the main menu. Once loaded you can remove your General Ledger program disk and remove the *Creditors* program disk and all the software is RAM resident. Switching between programs in memory is totally transparent to the operator.

> *"A package designed from the bottom up to take advantage of all the features the 128 has to offer."*

Fast! Copier

● The writers of the Super Creditors have also placed on the Creditors disk a RAM copier. Depending on which RAM expansion device is used, a C128 double sided disk can be copied in either one or two passes, by copying the entire disk into external RAM and then placing on your backup disk a 100% copy of the original using both burst read and write commands. (See listing at the back of this annual!)

Getting started

● A Creditors program in simplistic terms is a program that will record invoice/credit note and payments details against your creditors, in other words people you OWE payments to. The Debtors program records invoice/credit notes and payments received from debtors - they are the people who OWE you payment. And the General Ledger compounds the totals from all ledgers, debtors, creditors, sales system etc, together with less frequent items such as sales or purchases of assets, general overheads etc. This combination will produce a profit and loss statement, which together with assets, liabilities and capital items also stored, gives a balance sheet.

Super Creditors is aimed at the home business person, or indeed any company that wishes to keep track of their purchases from their suppliers. It is all too easy to believe the goods you sent back were actually credited to your account - or were they? If you have a C128/C128D and your reply was 'they wouldn't do that to me', then read on - you may need this program. Simply 'post' (enter) the invoices/credit receipts as they are received from your supplier and when you make a manual payment, post that payment as well.

Your Creditors account totals should be the same as the statement totals issued from your supplier. The design of *Super Creditors* is to make life as simple as possible at the end of each trading period by having the program select invoices from suppliers for payment. The program has built into it a Payment menu system which allows the operator to view and alter individual invoices for payment. Options allow the 'flagging' of invoices greater than a chronological date and allow the operator to choose the starting and ending creditors to be selected for payment.

A report will be supplied detailing which invoices and for how much. If this exceeds your budget you can withhold payments on all or some payments. Once this selection process has been completed you can instruct the program to make 'PAYMENTS'. You then select payments and supply a starting cheque number and the posting of the payments will be done for you automatically. If you are using the *Super Ledger* program you are required to supply the bank account number to draw these cheques against.

This process will automatically post cash payments, mark the invoices as paid and return the balance on these invoices to zero on each individual invoice, simultaneously marking by way of an asterisk on the remittance advice which invoices are being paid by this enclosed cheque. You will also have a printed report with the cheque number you sent and the individual invoices that have been paid with this cheque. You then have a hard copy for your records of who was paid, for how much and which invoices paid.

Super Creditors can keep details on 500 creditors on one disk and up to 492 details (invoices/credits/payments) per used creditor. The program is exceptionally fast due to the custom BLOCK READ & WRITE routines used throughout the program. This gives overall speed as the program knows in advance where the data is without having to rely on the Commodore DOS to find it.

Reporting facilities

● The strength of this package is its reporting or enquiry facilities. These reports can be directed to Screen or Printer. Some of the printed reports are Analysed Trial Balance (90/60/30/current) - Remittance Advice Or (inquiry) - Customer Listings - (numeric or alphabetic) - Month End and Year End Purge Reports - Creditors Letter Writer - Print 'flagged' Payment Report - Generate Cash Payment Report - audit trails for Invoices, Credit Adjustments And Cash Payments.

Super Creditors like *Super Debtors* is fully integratable with the *Super Ledger* program. What this means to you the operator is true data transfer between programs. Simply do your normal postings of invoice/credits/payments into the Creditors and if you have the Super Ledger active all this information will automatically be carried through to the general ledger posted to the Purchases Journal and your banl balances will be adjusted as well.

Simply remove the Creditors disk when instructed and insert a General ledger data disk, and the 'updating' of te General Ledger will occur automatically and an audit trail will also be produced. The remittance advices are the same as the statements in the Super Debtors (REDIFORM R103/HAR). For further information call (043) 244929. RRP $149.00 plus $8.50 postage and packing.

Phil McGuinness, the General Manager of Sherlock & Watson, tells me that both *Super Debtors* (v1.2) and *Super Creditors* (v1.2) are ready for shipment at $149 each plus $8.50 postage.

Mail orders should contain the company name for encryption on the master disks with their payment.

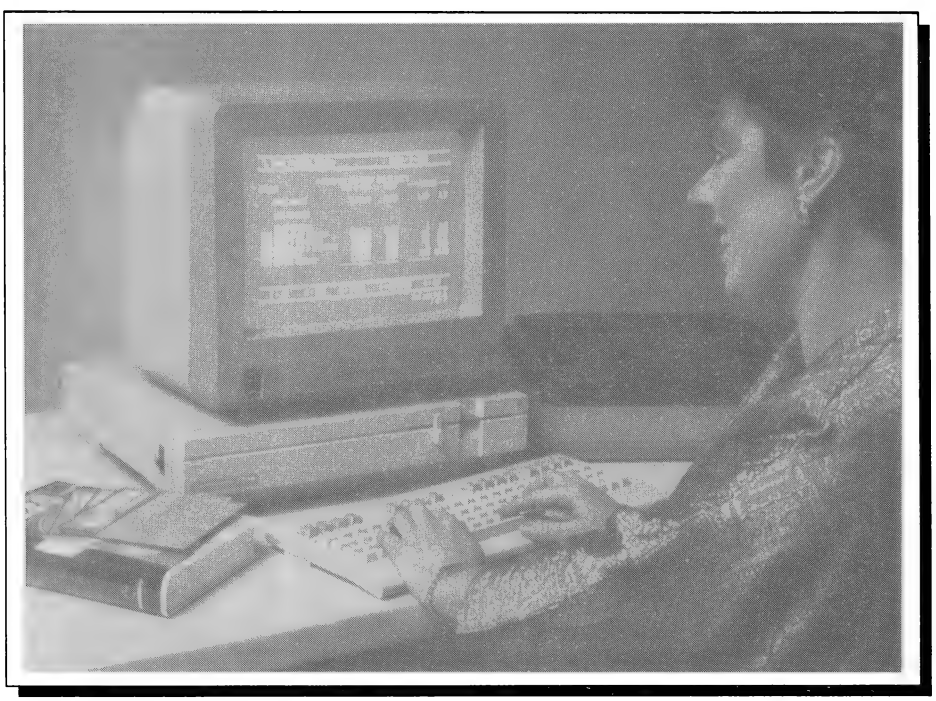
To purchasers of the entire package consisting of Debtors, Creditors and General Ledger in a single purchase, a SPECIAL price of $299.00 including delivery will apply.

● Any (single) package $149.00 + $8.50 postage/handling.

● Any (two) packages $230.00 + $8.50 postage/handling.

● All (three) packages $299.00 (includes postage & handling)

Available from:
Sherlock & Watson,,
15 Fisher Road
Point Clare, NSW 2250
Ph: (043) 244 929 ❑



A Hitch-Hiker's Guide to Communications

by Bernard de Broglio

Computers are to be found dotted all over the globe. By linking your computer to the local telephone exchange, you too can venture forth onto this electronic network. Pack your bags - it's time to travel.

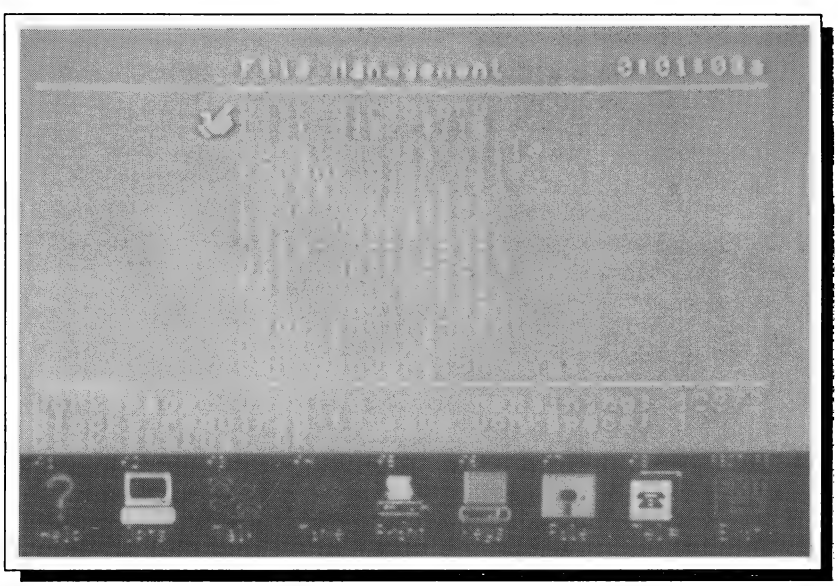
YOUR FIRST REQUIREMENT is that piece of hardware known as a "modem", a smallish box which allows the computer to make sense of the telephone system. When your computer shoots information down the line, the modem must first MOdulate it into a form the telephone can comprehend. At the other end of the line, the high-pitched squeal is DEModulated.

The "mo-dem" converts a digital signal to analog and back again. Installing a modem is not complicated. A slightly non-standard RS232 cable links the unit to the C64 or 128, and it may draw power from the computer or have its own power supply. A cable connects the modem to a standard telephone socket. Although the principle remains unchanged, there is a great variety in the modems for sale. These revolve principally around the speed at which the unit communicates.

A modem's pace is calculated by the number of "bits per second" (bps) it can pump down the telephone line. This is also known, somewhat loosely, as the baud rate. This year, 2400 bps is the go. Computer users have speed as their holy grail, and most are holding out for, or already have, modems that can handle 9600 bps. At the moment, these turbo models are very expensive, but expect to see them as standard equipment within a couple of years.

For now, 2400 bps modems are available at a reasonable price. Your need for speed will depend very much on your individual requirements. If you frequently dial overseas systems, the additional cost of a 9600 modem would be justified by the savings on IDD charges. At the moment, few Australian systems support this baud rate.

Just to muddy the waters, there are two standards at work in the modem world for units at 300 and 1200 bps.



VIP-XL File management page

These are "CCITT" (which is recognised world-wide) and "Bell" (applicable only to the United States). If you purchase a modem at 300 or 1200 bps, keep this in mind. There are no such differences amongst modems at 2400 bps and over.

A fellow traveller

● An Australian-made modem is your best buy. Not only are you giving the local economy a boost, but you'll find yourself with a warranty and a company that knows what it is talking about. If you run into problems, this support will prove invaluable.

Second-hand units at 300 and 1200 baud are often advertised for sale. Think carefully of the restrictions of such baud rates and enquire most diligently about compatibility with your computer. You may regret the cheaper modem when it doesn't respect your software in the morning. Organise a test-run if possible.

As with much computer hardware, newer is better. Netcomm have an extensive range, which includes the popular Pocket Modem. Avtek Data Communications have the MegaModems in several different configurations.

The Maestro 2400 ZXR and XR

● Maestro produces modems of Australian design and manufacture. More importantly, its product is first class. The 2400 ZXR modem has the lot for about $399. It will handle 300, 1200/75, 1200 and 2400 baud, with auto-answer and auto-dial. It is compatible with the industry standard Hayes "AT" command set, but if this means nothing to you, don"t worry. This standard will ensure that you never have to learn about it. The Maestro handles both tone and pulse dialling.

For around $100 less, the Maestro 2400 XR is the same basic unit, but supporting only 1200 and 2400 baud. Remember, Viatel requires 1200/75. If you never intend to use Viatel, this is not a problem.

Both modems are a breeze to set-up. They are sturdy and reliable, and are backed up by a ninety days warranty. Coloured basic black, the modems are roughly the size of a large hardback novel. My only criticism lies with the manual. It is not particularly helpful for the new user.

Maestro Pty Ltd may be reached at Calool Street, South Kincumber NSW 2256. The Maestro ZXR and XR are highly recommended.

Terminal software - into the driver's seat

● Commodore 64 users will find there are many more terminal programs floating around than are commercially available. *VIP-XL* is one such example - an excellent program. Icon interface or function keys allow selection of many options. The environment may be saved, there's a phone book, capture buffer but only one transfer protocol - XMODEM. Text files may be directly transmitted too, although this is a little risky. As a terminal program, it looks and feels good and is powerful enough for most casual users.

For the power user *Kermit* may be a better solution - once again, only available these days through user groups. This is a semi-shareware type program.

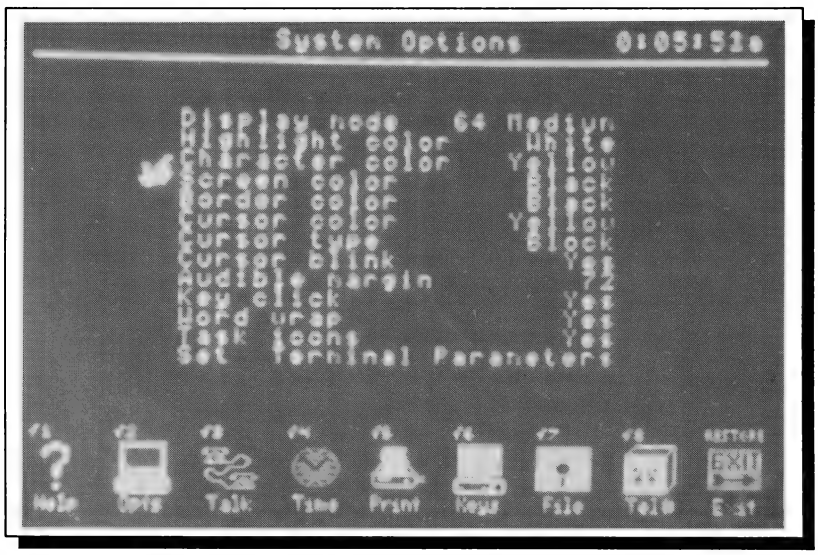
For off-the-shelf purchases GP-Software sell an excellent program which is bundled with some Netcomm modems. Ask your local dealer for the latest information. Once again, only Xmodem is handled, there's a phone book and plenty of hot keys easy to use menus. Smart design and very well documented. *GP-Term 64* is available from from most Commodore dealers for around $59.

For those on a budget, our own disk magazine, *Suite 64*, has published several terminal programs over the years. See the list in this publication for details, pages 66, 67.

Have modem, will travel

● The modem is plugged in, the software is talking to the hardware and all LED's are glowing in anticipation. What now?

Your first call will probably be to a local system known as a "Bulletin Board". A Bulletin Board is simply another computer linked to a telephone line, equipped with the appropriate software. It will allow you to leave and receive messages and to upload and download software. Think of it, perhaps, as the local pub - all through the day and night, people will call in to the Bulletin Board System (BBS), writing and replying to messages, discussing everything from Abba to Zulu rituals and back. Fortunately, your local BBS is not restricted by licensing laws ...



VIP-XL System options

And how do you get into the BBS? Simply dial its phone number. (The newer "smart" modems will ring the number for you, when you double-click on the BBS listing in your "phone directory". This is called auto-dial and it is infinitely preferable. Older modems may require you to dial the number manually.) The BBS will answer your call and emit a high-pitched squeal. This is the "carrier", the signal which transmits the information to and from the BBS. The modem will make sense of this and after a brief pause, will display the system's log-on message. Hopefully.

If there's garbage on your monitor, make sure that your terminal and the BBS are communicating at the same baud rate, and that the following are set correctly: most Bulletin Boards work on 8 Data Bits, No Parity and 1 Stop Bit. You could even read the manual.

The Bulletin Board will now want to know who has called. You will be asked to input your name or user identification number. If you have called before, a password may also be required. New users are generally asked to fill in a questionnaire, giving their name and address, and must choose a password. The System Operator(s) will treat this information as confidential, but discretion may be in order. Both users and SysOps must be protected from each other! (A word of warning. Treat your password as you would your bank PIN number. Give it to no-one and change it regularly.)

Your access to a Bulletin Board will vary from place to place. On some, there is a membership fee to pay. On others, there are certain areas restricted for regular users or specific clubs. Of course, Telecom will also charge you for the cost of your call. In almost every case, the BBS will be run by a private individual or two, at their own expense. Membership fees may help to defray the cost of equipment, but very few systems operate at a profit. Your generosity will be appreciated.

That is not to say, however, that Bulletin Boards are amateurish affairs. On the contrary, many are of exceptional quality.

The Australian Bulletin Board Registry compiles regular lists of these on-line systems. According to the latest listing, there are some 363 Bulletin Boards in Australia alone. (Full list on page 85.)

Exploring the BBS network will be your first task! But what exactly does a Bulletin Board offer? Let"s take a ride through Sydney's "TeleInfo Systems Australia" BBS:

TeleInfo Systems Australia

● TeleInfo is a six line Bulletin Board based in Sydney. It provides a wealth of message areas and public domain software, and an interesting concept known as "Chat". The local message areas of this BBS include a Discussion and Media Watch section, complemented by SIG's

GP Term - auto dial menu

(Special Interest Groups) for Amiga and Apple users. There are also a number of "Echomail" conferences. The notion of Echomail will be introduced shortly, but suffice it to say that this BBS offers a number of national conferences, such as the Australian Trading Post, Science, Games and Commodore Echoes. International conferences include the Amiga, Space, CD-ROM, Audio, C, Humor and Shortwave Radio Echoes.

You will get to know the terms "uploading" and "downloading" well. Most Bulletin Boards have a files section, from which a program may be transferred - over the telephone line - to your computer. This is downloading. Most Bulletin Boards also like you to submit programs for the file section and the benefit of other users. When you transfer a file to a BBS, you are uploading.

An alternative to messaging other users is "Chat", a real-time conversation between any or all of the callers logged-on to a Board. On TeleInfo, the "Chat" area is called the "CB Simulator". In this conference, what you type is sent to each other person in the CB Simulator, preceded by your name and line number. What follows is similar to normal conversation, but not quite. If the BBS is akin to a pub, then the CB Simulator is the bar. Discussion can be lively and the puns grotesque! "Chat" is a relatively recent innovation and should be experienced.

TeleInfo Systems Australia is a big BBS with plenty of activity. The six lines are appreciated, but it remains busy in the evenings. A membership fee of $25 a year gives full access to the system and a more generous time limit. Visitors have 30 minutes per call and 60 minutes per day on the Board, with no access to the files section. TeleInfo supports all baud rates up to 2400. Call TISA on (02) 975-1099.

Treading the boards

● Prophet TBBS is primarily an IBM oriented Bulletin Board, but it has a great cross-section of message areas. Prophet, like TeleInfo, has a "Chat" facility, called Yakety-Yak. Multi-line systems are becoming a little more frequent now. Prophet was one of the first. It has 6 lines and a 30 minute call limit, ensuring a brisk traffic throughout the day. Prophet BBS may be reached on (02) 628-5222. "As far as privately operated, free-access systems go," says Andrew Farrell, "this is one of the best".

Paragon is another Sydney BBS, recommended primarily for the quality of its message base. The local discussion is always lively and the users make an effort to post creative messages. Paragon charges no membership fee. It may be reached on (02) 597-7477. But any opinion of individual systems is going to be subjective. What is certain is that you will find a BBS that serves your interests.

A jaunt in the country

● Australia's national videotex service is Viatel. It is this system that will provide you with telebanking, telebroking, teleshopping and on-line TAB details. This sounds like everything you might need, but there are two drawbacks to consider.

The first is that Viatel is not cheap. A monthly subscription for a non-business user is $3.50. You will, of course, pay the cost of a local call for each log-on, as well as a time charge. Viatel costs 9 cents a minute during peak hours. At other times, expect to pay 6 cents a minute. You may also have to accept a frame charge for some areas. The frame charge can be anything up to $4.99.

The second complaint is subjective. While the concept of electronic news digests, information databases and travel information sounds good, there isn't all that much purpose. A copy of the daily newspaper, for example, is cheaper, more informative and easily portable. However, telebanking - shunting money around your bank accounts - is popular and many people have sworn by telebroking.

For further information on Viatel, write to Freepost 20, Viatel, G.P.O. Box 188C, Melbourne Victoria 3001.

The world - on 21c a day

● Hopefully, you've enjoyed these escapades, but your horizons have been broadened. It's time to go beyond these shores. Let's see how Australia fits into the world-wide scene.

Connecting Bulletin Board Systems all over the globe is FidoNet, the very first international BBS Network. FidoNet had its beginnings in May 1984. Two American programmers, Tom Jennings and John Madill, were coding a Fido BBS system, and thought it might be helpful if two Bulletin Boards could contact each other without any human interference, preferably in the early hours of the morning when the System Operators (SysOps) were asleep and few users were calling in. By February 1985, the Fido network consisted of 160 systems. Today, a greater part of the world is linked to FidoNet. An Australian - Matt Whelan - is the International Co-ordinator.

To give you an idea of the breadth of this network, consider how FidoNet is organised: There are four main geographical Zones - North America, Europe, Oceania and South America - which are divided further into Nets. Each Net consists of a number of individual Bulletin Boards, called Nodes. Each BBS in the FidoNet system thus has an "address". Take for example "Paragon" BBS which has a FidoNet address of 3:712/502. The first digit stands for the Zone. Oceania is Zone 3. The following three numbers specify the Net within the Oceania Zone. Net 712 has been allocated as "Sydney Net". The

final three digits specify the exact BBS within the "Sydney Net" area. Node 502 is "Paragon" BBS. Where a BBS is not linked to a network, the non-existent Net number is replaced by a two digit Region number.

A Node may also be accessed by Points. A Point is usually an individual system, almost a one person BBS. If you become addicted to FidoNet messaging, this may be an option. Your computer will be set-up to dial the "Server" Node at the usual ungodly time, and to transmit and receive parcels of mail. This can then be looked over at your leisure. Points are becoming more popular, but are not yet a viable option for most BBSers. Someone "pointing" from "Paragon" BBS might have an address of 3:712/502.1.

Throughout this spider's web of Bulletin Boards, messages are being distributed along every strand. Messages may range from a brief greeting to a lengthy discourse on the merits of mushroom farming, but they are similarly treated. Keep in mind, though, that this service is freely offered by publicly-minded SysOps! In the early hours of the morning, the day's messages on a system are parceled together and compressed. Hundreds of Bulletin Boards around the world toss their packets of mail from Zone to Zone.

Gareth Powell, editor of the *Sydney Morning Heralds* computer section, calls this "one of the most amazing non-commercial computer systems in the world". From a Node or single BBS, your message travels to the Network Coordinator of your area. The Network Coordinator will automatically route the public message to all the Nodes in its net and the private mail directly to the Node for which it is intended. People will receive your letter within a day or two. Simple!

But it is high time to distinguish between two types of mail: netmail and echomail.

Netmail is intended for private communication only. SysOps prefer that general conversation be left in public message areas, to stimulate conversation, but if it's Top Secret, send it Netmail. Only the SysOp will be able to read it and a SysOp's discretion is legendary. Like any other letter, don't forget to include the correct FidoNet address.

Echomail is what Bulletin Boards are all about. Imagine message areas set aside for particular topics, accessable by thousands of computer users on the Fido network. How does this work? A group of Bulletin Board Systems will decide upon a "conference" with a given theme. This does not always have to do with computers. Each Bulletin Board in the group will have a message base set aside for this particular topic. Every message posted on one board is then echoed to every other BBS that is part of the conference.

Consider, if you will, the International Amiga Echo. You can post a message in this area on a Bulletin Board System in Perth. Within days, it will find its way to every other BBS that supports the conference. Your query might find its reply in California. Log-on to your local Bulletin Board and collect your international mail - for the cost of a normal call.

Echomail provides an immense information base on subjects ranging from Recipes to Shortwave Radio. Not only is it educational, but it can also be fun. The Canada-Australia Echo is one example. This has been set up specifically to provide contact between people in these two countries. Scandinavia has also tapped into the conference. Look to this Echo for friendly international chat.

The Space Echo is patronised by NASA personnel and space enthusiasts alike. The content is occasionally specialised, but rarely dull. From NASA headquarters in Washington comes daily bulletins and news releases, with details of shuttle launches and other missions. Keep an eye on American and Soviet space agencies and enjoy the immediacy of international communications!

In the United States, there are some 50 Bulletin Boards that support self-help groups such as Alcoholics Anonymous. Callers have access to an on-line collection of A.A. "recovery advice" and their own message base. The anonymity of a Bulletin Board is helpful for people who may be reticent about attending a meeting. The act of writing the message may itself be a cathartic experience, and the response is likely to be encouraging and understanding. Such message bases are a vital link for people in rural communities.

The etiquette of protocols

● We have been working under the assumption that telephone lines are a wondrous thing. Not yet, anyway. Mysterious crackles are evident in normal phone conversations and these do not disappear when the computer does its stuff. "Line noise" is a burden that the BBSer must bear.

Things are getting better though. The lines may not have improved substantially, but the error checking protocols certainly have.

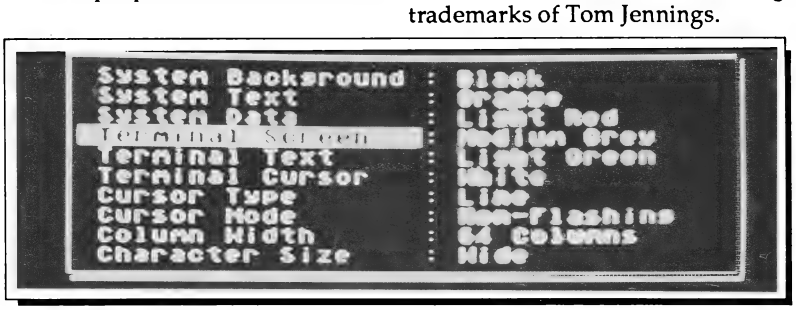
Very smart programmers have developed a means of minimising garbled communications. You will come to know these protocols as well as your family, but there is no need to understand them. Basically, the protocols will check each small segment of data received and sent against a Cyclic Redundancy Check (CRC) character. Any variation in the CRC patterns at either end will cause the last block of data to be transmitted again; that is, a Negative Acknowledge (NAK) is transmitted to the sender.

If all goes well, the sender receives an Acknowledge (ACK) and continues pumping out the data. Common protocols include Xmodem, WXmodem, Ymodem and Zmodem. Xmodem is good, Ymodem and Zmodem are preferable. As long as your terminal and the Bulletin Board are using the same protocol, there is no need to bother with the arcane mathematics. If you are interested in a closer look at error-checking protocols, there are lengthy text-files on the subject in the files area of many Bulletin Boards. Good luck.

Prepared for take-off

● There is one component of the electronic world that has not been adequately discussed. In fact, it justifies the very existence of the communication network. That component is real people. They say travel broadens the mind. Get to it!

"FidoNet" and "Fido" are registered trademarks of Tom Jennings. ❑


System Background : Black
System Text : Orange
System Data : Light Red
Terminal Screen : Medium Grey
Terminal Text : Light Green
Terminal Cursor : White
Cursor Type : Line
Cursor Mode : Non-flashing
Column Width : 64 Columns
Character Size : Wide

GP Term C64 - Screen preferences

Communication Glossary

Acoustic Coupler: A device that allows modem-generated audio signals to be transmitted into and received from a telephone handset. The handset is placed into rubber cups on top of the coupler. A small transducer at the bottom of the cups produces the actual signal. Rarely if ever used except by portable computers and car faxes.

ACK: Acknowledge. Yes, I received that last byte, or string of bytes. Normally only used in file uploading or downloading.

ANSI: A terminal protocol.

ASCII: American Standard Code for Information Interchange. A seven-bit code used widely in data communications to transmit the letters of the alphabet, plus the standard punctuation marks and certain control characters. Every character has a corresponding numeric value that is common on most home computers. This allows different types of machines to speak with each other.

Auto-answer Modem: A modem that can answer an incoming call by generating a carrier tone that signals the originating modem its call has been received.

Auto-dial Modem: A modem that can simulate a telephone dialer using either pulse or touch-tone dialing signals.

Austpac: Packet switching network provided by Telecom. Allows computers who talk at different speeds and languages to exchange information.

Baud: A speed expressed in bits per second transferred over a communications line. 300 baud is roughly 30 characters per second.

Bell: The American standard for data communications.

Binary: A number system using base two rather than base ten as in decimal.

Bit: Short for binary digit (either 1 or 0), the elemental unit of digital information. Every character is made up of several bits (usually eight). A bit is either one or zero, corresponding to pulses that may be transmitted audibly on telephone lines.

Buffer: Often called capture buffer. In general, a temporary storage place for data. A capture buffer is temporary storage for data "captured" from a communications link.

Bulletin Board: A computer you can access via modem especially for leaving messages to other users. Various subject areas are available, and normally programs can also be uploaded or downloaded.

Byte: On an eight bit computer, eight bits make up a byte. Usually one byte is equivalent to a character. Each character in the ASCII set can be represented by only seven bits. Thus, a byte can be thought of as equivalent to a character for approximation purposes only.

Carrier: A steady signal that can be changed in tone (modulated) to transmit data.

Checksum: The last thing you do on your tax return. Also used as a test for the integrity of information transmitted by any means where corruption may take place.

Control Characters: ASCII characters that do not print out, but are used to control communications. Control characters can, for example, signal a sender to stop transmitting information when the receiver is busy.

Data: Information in code, text or numerical form, generally represented in ASCII code for digital communications.

Database: A file or program which contains information in a specially formatted way. Normally made up of records and fields which are roughly equivalent to a card file system.

Download: Transfer a file from another computer to your computer.

Duplex: Twin accommodation. Refers to the two-way nature of modem communications. In full-duplex communication, both terminals can send and receive simultaneously. In half-duplex operation, both ends can send and receive, but not at the same time. With full-duplex, echo-back communications, a transmitted character is not displayed until it has been verified by the receiver.

Electronic Mail: Messages directed to a specific user on a Bulletin Board system. A personal message, similar to mail.

Frequency: The number of cycles of an oscillating waveform that occur each second.

Glitch: Hiccup on the telephone line. Some information may be garbled making it unreadable.

Hayes: A widely accepted standard set of commands for controlling modems and setting various options within them.

LF: Line feed. Moves the cursor to the next line.

Modem: A device that modulates audio tones to carry digital signals and also demodulates the signals at the receiver so they can be understood by a computer.

NAK: Negative Acknowledge. Used in file uploading/downloading.

Noise: Random disturbances that degrade or disrupt data communications, present to some degree in all transmission links.

Originate/Answer Modem: A modem that can either start a telephone call or receive one automatically. Some modems automatically assume originate or answer status, others require manual switching to the proper state.

Parity: A means of checking for errors by adding an extra bit to each ASCII character transmitted.

Protocol: A set or rules for the transmission of data. Protocols describe when transmission will start and stop, what error checking system is in effect and the like. It is the format by which information is sent through the telephone system to minimise errors. Files are normally broken down into smaller parts sometimes called packets. A checksum is calculated and then compared with that calculated by the receiving system to ensure everything arrived intact.

RS-232: A standard for transmission of serial data covering both hardware configurations and transmission parameters. Different manufacturers may implement some or all of the RS-232 standard in their communications products.

SEAlink: A downloading/uploading protocol.

Serial data: Data sent one bit at a time, as opposed to parallel data sent several bits at a time. Modems operate on serial data.

Sysop: System Operator. The person who is responsible for the smooth operation of a particular remote access system such as a Bulletin Board.

Teleconferencing: Several people get together to talk via electronic means, either telephone or computer, about a particular subject. Often used in multi-user remote access systems.

Terminal: A device that receives or transmits digital information. Communications software is designed to control computers during terminal mode operation.

Upload: Transfer a file to another computer.

X-ON/X-OFF: A protocol for pausing data transmission using simple control characters. ❑

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JSA COM 0424

Watch Out! Bugs

The insidious bug to end all bugs. Eric Holroyd explains.

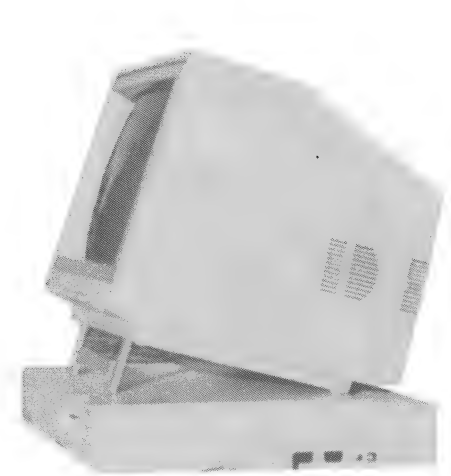
COMMODORE HAVE always refused to acknowledge that there is a bug associated with using the SAVE "@ command. Experienced users, on the other hand, have no doubts that there is.

For newer users who may be wondering what it's all about anyway, let me explain. First of all, the correct way to Save a file (it could be a program typed in from a magazine for example) is by typing:

SAVE "filename",8 (RETURN)

What this does is create the file on disk (note that none of this applies to tape users) which obviously then takes up a certain amount of disk space. This is shown in "blocks" at the foot of a directory when listed. Commodore DOS gives us 664 blocks free on a newly formatted (sometimes called "initialised") disk. Let's say we have a program which takes up 50 blocks and it's to be saved to disk.

By the way, it's always a good idea when typing in a program to save it before running it for the first time as a typo could make the computer do all kinds of unpredictable things. Maybe it'll even crash and lose all your valuable typing! All computer users have lost hours of typing this way, before realising the value of "saving before running", so make it your regular practice.



So, on a new disk there's plenty of room to store our 50 block file. Even if 614 blocks had already been used up in storing other programs we'd still have room to store (or save) it. Now comes the crunch! If there was a typing error in the program it would need to be corrected and the program re-saved. This is where "Save and Replace" (or "Save with Replace" as it's sometimes called) comes in. Theoretically, by issuing this command along with the program name you can save the corrected version of the program and erase the version with the typing error. In other words, replace the first version with the corrected version. What's believed to be the safest way to do this is to use the command exactly as follows:

SAVE"@0:filename",8 (RETURN)

Unfortunately, the command as built into the C-64's operating system, saves the new version and then erases the old version. This wouldn't work in my example above (614 + 50 = 644 = Disk Full) as there isn't enough disk space available. There needs to be at least enough blank disk space to save a second version of your program for the command to have a chance of working properly. Again, the best and safest way to achieve all this is to first of all Scratch (or delete) the first version then save the new version. The command for scratching a file, as per the 1541 disk drive manual is:

OPEN 15,8,15,"S0:filename":CLOSE 15 (RETURN)

(The 0 in "S0:" is a zero by the way and tells the DOS, or Disk Operating System, which disk drive to work on. More about this in a little while.)

If we do this first, then save the program as per the first command above, there will be no danger of anything being corrupted. In fact, the whole job can be achieved with one command like this:

OPEN 15,8,15,"S0:filename":CLOSE 15:SAVE "filename",8 (RETURN)

C64 users who have the Cockroach TurboRom fitted to their computers can do all of this very much more easily. This "add-on" is a great idea and has much shorter commands to do almost everything connected with the disk drive. It's command for "Save and Replace" is this:

@SAVE"@:filename (RETURN)

That's it! There's no need to type @0: to signify the drive number as the TurboRom automatically defaults to drive 0 and it knows you're using a disk drive anyway so doesn't need you to enter ",8. Also, when performing a "Save and Replace" it first of all scratches the old version and then saves the new version just as I've described for you to do manually just above. Incidentally too, when you list a disk directory to the screen to check the number of Blocks Free the Cockroach command is:

@$ (RETURN)

This gives a "harmless directory" which doesn't destroy the program in memory as does the normal Commodore DOS command of:

LOAD "$",8 (RETURN)

This wasn't intended to be a commercial for the TurboRom, but I'm so used to using it in my own C-64 that it seemed a logical thing to do to show how an "add-on" product solves the Save and Replace problem. At the same time it offers other benefits such as the directory one just discussed, as well as a huge increase in operating speed.

Another little point which may cause some confusion to new users is the use of the word "initialised". As I said earlier, this is often used instead of the word "formatted" when discussing a disk prepared for use with the command:

OPEN 15,8,15,"N0:diskname,ID":CLOSE 15 (RETURN)

@N:diskname, ID (RETURN) for Cockroach users

Initialising seems to have two meanings in the Commodore 64 world, the one just discussed refers to preparing a disk for use. (Referred to in disk manuals as NEWing the disk - Ed.) Whilst the other use is taken to mean returning the disk drive to its start-up condition after a drive error has occurred. Sometimes the read-write head may get stuck in such a position that it can't read the information on a disk and "initialising" the drive will return the head to its normal position. To further confuse things, this is also called a "drive reset", which is the way I prefer to think about it anyway.

The command to initialise the disk drive is:

OPEN 15,8,15,"I0":CLOSE 15 (RETURN)
@I (RETURN) for Cockroach users

I mention this one because I fell foul of an American program once (before I understood the disk formatting meaning of "initialise") and finished up with a blank disk. Remember, when you see the word, think about it before you press the "Yes" button.

The bug in "Save and Replace" has been identified as being part of the original Commodore operating system which was carried over from their earlier computers with two in-built drives. Apparently, if no drive specifier (@0: or @1:) is used, the DOS gets confused and looks in a single 1541 system for the non-existent second drive.

When it doesn't find that second drive it performs a SAVE with (sometimes) disastrous results. You may finish up with a corrupted new version, a deleted old version, and a new typing job ahead of you.

I don't claim any of the kudos for discovering all this about "Save and Replace", it's just that I'd read all about it some time ago in *Compute!* magazine where Philip A. Slaymaker (the author of the excellent Peek-A-Byte utility) covered the subject over two issues. It's a good discussion running to about six pages and also has short example programs to demonstrate the existence of the bug and the effects it can have. ❑

A better way to save big programs

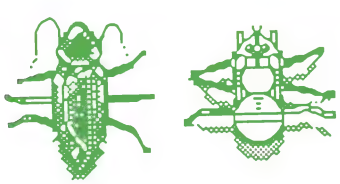
● For big programs under development, this built-in safety SAVE makes backup copies along the way. That way, if a new version introduces bugs that are hard to deal with, you can always go back to a previous pass.

Notice that the disk drive channel is open and closed every time avoiding a lockup if a backup version doesn't exist yet.

This routine first erases the oldest backup version of the program on the disk (if there is one) then renames the second copy to #3 - the first backup becomes #2, and the previous "new" version becomes BACKUP #1. Last, the current version in memory is saved to the disk, any time you type GOTO 10000!

```
9999  END
10000 OPEN 15,8,15,"S:BACKUP
      #3:CLOSE 15
10010 OPEN 15,8,15,"R:BACKUP
      #2,BACKUP #3: CLOSE 15
10020 OPEN 15,8,15,"R:BACKUP #1,
      BACKUP #2: CLOSE 15
10030 OPEN 5,8,15,R:PROGRAM
      NAME,BACKUP #1: CLOSE 15
10040 SAVE "PROGRAM NAME",8
```

From *The Big Tip Book for the Commodore*



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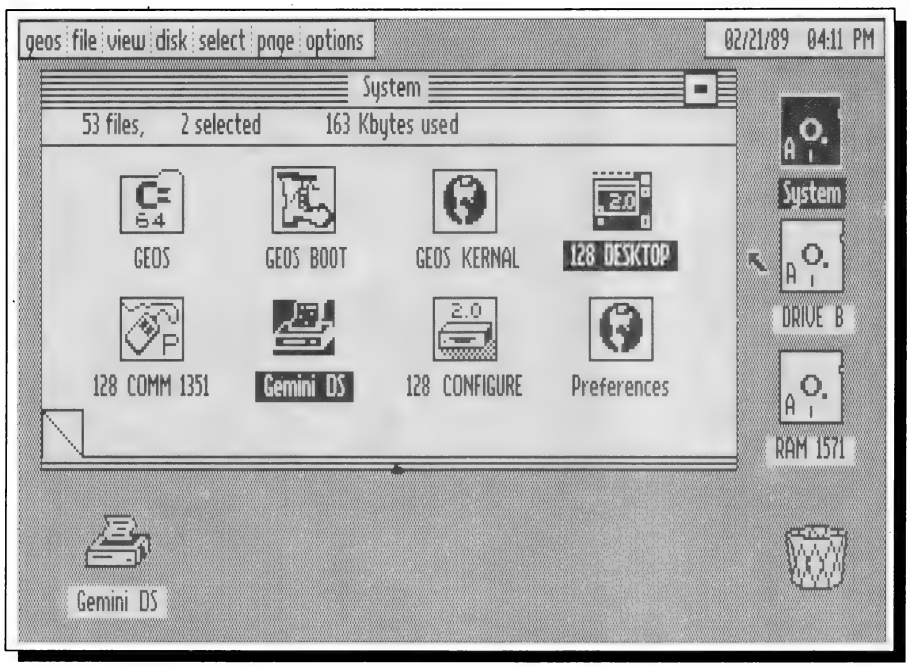


GEOS HAS BEEN THE life and soul of Commdore 64 software development for some time and it looks set to remain the best option for the future. It has truly come of age now, with the release of Version 2 boasting many new features.

Apart from those added to the operation of the desktop, there is now support for two disk drives plus the Commodore RAM expander for serious *GEOS* power users. (We recommend the 128 RAM expander only with older model C64's - the newer version cannot cope with the power drain.) There are also more printer drivers added so buyers should have no difficulty in finding a printer driver to use with their printer.

What is GEOS all about?

● For the uninitiated, GEOS may seem like a lot of hot air. Is it all just a fancy front end? In some respects, an underpowered C64 with *GEOS* can seem like a case of overkill. However *GEOS* has excellent graphics and, the concepts are well worth learning, as they are a part of larger machines such as the Amiga.

The environment is easy to work with, and with the latest version, it's reasonably powerful. The great part about *GEOS* is that once you know how to use one program, learning another is fairly simple. Organising your disks and files is also much easier than the conventional arrangement. For beginners, *GEOS* is a mighty step forward. You can get on with actually using the wordprocessor or paint program and worry less about operating the computer. For serious use, a mouse is a must.

It's best to think of *GEOS* as a replacement operating system. Although *GEOS* makes use of some of the in-built software in ROM in the Commodore 64, much of what happens relies on *GEOS* own custom routines. Thess routines or programs are used by all the *GEOS* modules or add-on programs. This gives the entire environment a similar look and feel, making it easy to use.

Once you boot *GEOS* up, you'll find that files, disks and programs are represented by little pictures or icons. These can be dragged around the screen, moving them to another device, or they can be run by double clicking on the relevant icon. All this is done using a pointer operated by the 1351 mouse, joystick or touch tablet. Do yourself a favour - for around $89 *GEOS* is well worth a look!

Improvements with version 2.0

● Version 2.0 adds many new features and options as well as including software previously sold separately - *geoWrite* and *geoPaint*. It is now possible to do multiple file operations instead of having to deal with one file at time.

For instance, if you wish to transfer say, six files from your work disk into your ram expander, it is simply a matter of holding down the Commodore key, clicking on the six files required (which then change to reverse video), then clicking on any one of the chosen files. A multi-file 'ghost' icon then appears and you click on this, drag it over to the ram expander disk icon on the right hand side of the screen, click again and the files are transferred to the ram expander (or a second disk drive if that is how you have your set-up configured).

There is also a similar option available in the menu functions on the top of screen. By clicking on the 'select' option, you can then select from one of three options; 'all pages'; 'page files' and 'border files'. For instance, if you click on 'page files', all of the files on the page currently on screen will go into reverse video, and you can transfer these to your expander or second disk drive using the method described above.

Another good feature is that you can now transfer eight files to the desktop border instead of the four files that you used to be restricted to. The desktop clock has also been changed so that now, whenever you have the desktop on screen, the time and date are shown in the top right hand section. I recommend that you set

the time and date each time you boot up Geos. This will ensure that your files will be 'stamped' correctly whenever you use them.

geoPaint

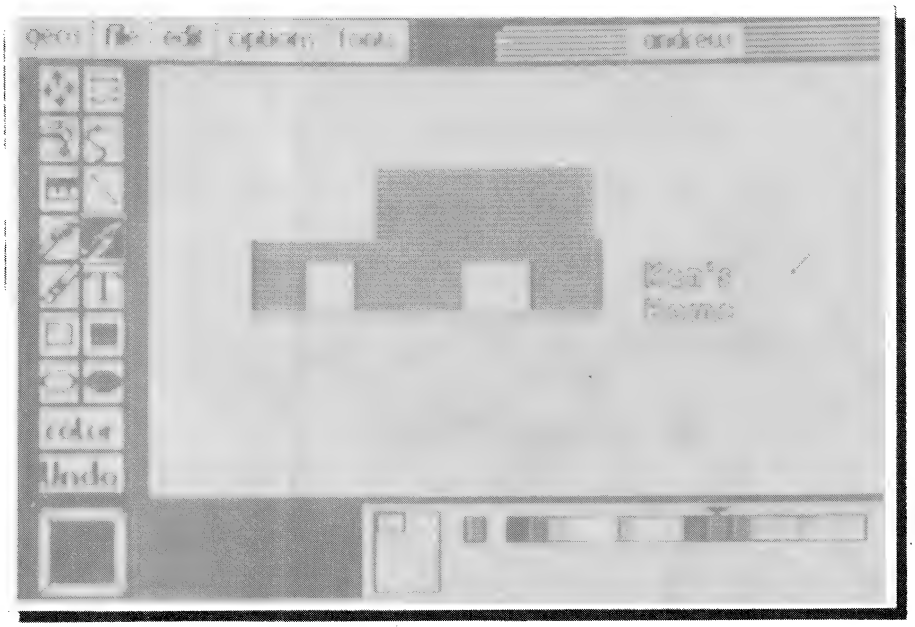
● *GeoPaint* has also been considerably up-graded, and we will have a look at some of the new features that have now been made available in Version 2.0. Firstly, it is now possible to create ellipses well as circles by use of the 'constrain' option. If you use 'constrain', as the word implies, it will constrain the image to a circle. However, if you de-select constrain, you can then create ellipses to whatever size and shape you desire. The same feature works with squares and rectangles.

Another excellent new feature is the ability to move the pointer pixel by pixel using the cursor keys. It enables accurate placing of the pointer with a minimum of fuss, and is especially handy when you are doing house plans or electrical layouts etc.

Berkeleys have also transferred the image scaling device from *geoPublish* to this new version of *geoPaint*. You can now copy an image on screen using the edit box and clicking on copy or cut. This places the image into a photo scrap file, then it is simply a matter of defining a new area (any size you like within the current window you are working in), selecting the edit menu and then clicking on paste. The image is pasted into the new region, and you then have the choice of placing it centrally in this region; scaling it to fit, or stretching and scaling the image to fit into the new region.

As well as being able to re-scale your drawings, the new edit box in Version 2 allows you to make a couple of other changes. The image can be made transparent so that you can superimpose it over other images to create great special effects. Also, you can select one of 32 patterns and your image will be redrawn using the chosen pattern (which is displayed in the box as you cycle through the patterns to make your selection). These additional features give a great deal more power and flexibility to the *geoPaint* program.

GeoPaint now also has a user selectable grid to assist with those larger drawings that will require more than one window to complete the work. The only drawback to this feature is that when you turn the grid off at the end of your work, data underneath the grid lines is also erased. The best method is to erase the grid manually in each section as you finish the work in that area.



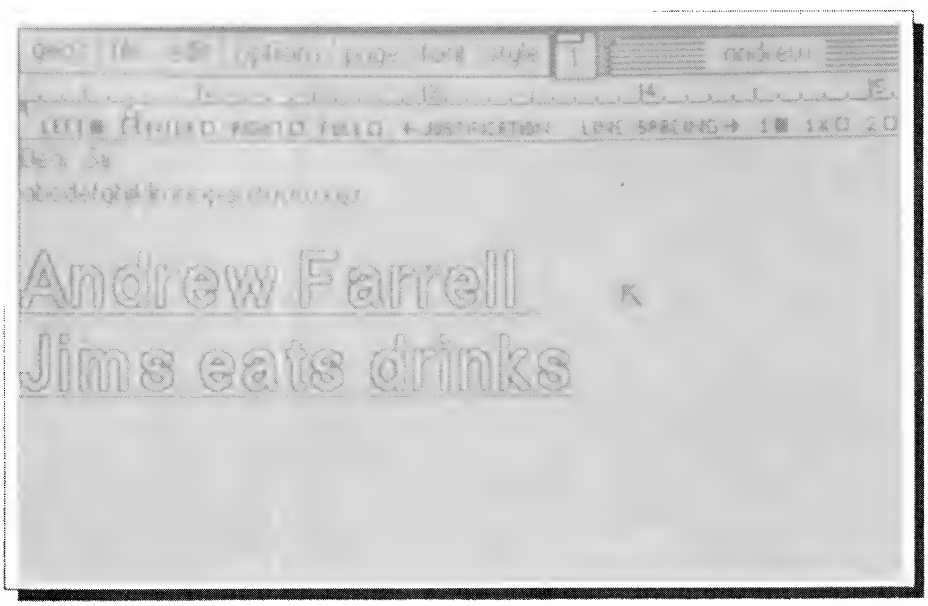
geoPaint

Berkeleys also supply you with a transparent acetate grid to place over the drawing or plan you wish to copy. Then, when you turn on the grid on the screen, you simply draw the whole picture square by square, using both of the grids as your measuring guide.

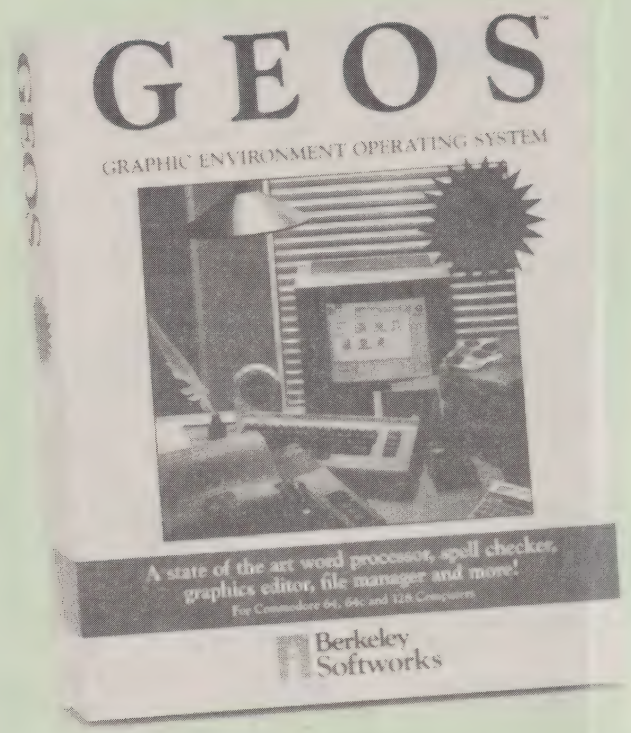
geoWrite

● For those users of the previous version of *GEOS 128* who did not buy *Writers Workshop*, all the additional enhanced features for the word processing side of the package that were found in *Writers Workshop* now come standard in *GEOS 128 Version 2*. Features such as headers; footers; text formatting; search and replace; decimal tabs; centre, right and full justification; superscript and subscript; single, one and a half and double spacing and so the list goes on. To be quite honest, I would doubt that any serious writer could have used *geoWrite 128* without the features of *Writers Workshop 128* that now come standard in this new version.

Also included with *GEOS 128 Version 2* is the ability to format your document by either full page or individual paragraphs; print options for either high quality, draft or near letter quality modes (provided your printer supports these



geoWrite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Berkeley Softworks

features), and putting the page number, time and/or date into the header or footer. In addition you also have the capacity to import graphics or text from other *GEOS* programs such as *geoPaint*, *geoCalc* and *geoFile* etc. All in all, it comes up to what you would expect from a professional style wordprocessing programme.

geoSpell

● As if the above features weren't enough, Berkeley have also bundled *geoSpell* into this new package. *GeoSpell* was another program that used to be sold separately, but now, not only is it included at no extra cost, it also runs much quicker than it used to.

Using the Expander, *geoSpell* checked a document of 1500 words plus (about 2 and 1/3 pages) in just under a minute, not bad by anyone's standards. Not only is *geoSpell* easy to use, but like all other good spell checkers, it allows you to build up your own personal dictionary. So Aunt Anzillito or Uncle Rhiandofile need only be entered once into your personal dictionary and their names will never be queried again (at least not by *geoSpell*).

GeoSpell also allows you to search for a word either from the main dictionary or your own personal dictionary, and switching from one to the other is done simply by one click of the mouse. When *geoSpell* queries a word, you have the option of accepting the word in that instance; accepting it in all instances; replacing the word in that instance or replacing it in all instances within the current document. The option of accepting a word in all instances is a handy feature as it stops the word being queried throughout the entire document.

The *geoSpell* dictionary contains approximately 40,000 words and you can add about 10,000 words to your own dictionary. This should be more than enough to meet the need of the bulk of the 'would be' authors out there in computer country.

geoMerge

● *GeoMerge* is another of those programs that used be sold separately, (with *geoDex*) but is now included in the basic package of *GEOS Version 2.0*. For newcomers to computing and/or *GEOS*; as the name implies, *geoMerge* is a program that allows you to send out multiple copies of a single document to any number of individuals or companies.

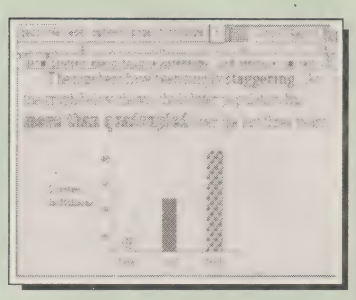
The program is simple to use, but yet is quite powerful. It allows you to use 'IF' and 'ELSE' statements to tailor the program to suit your individual requirements. Differing words or groups of words which may or may not be required within the form letter being produced may be controlled by use of the 'if' and 'else' statements.

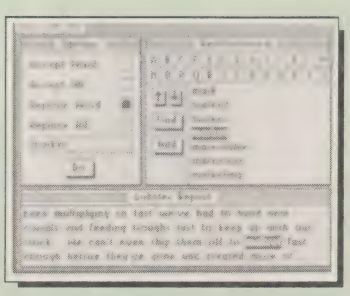
Other features

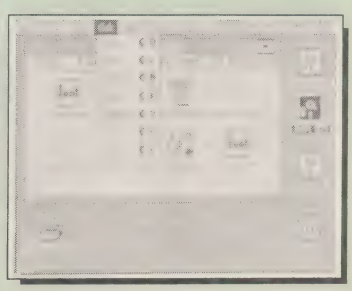
● *GEOS Version 2.0* also includes a text grabber to allow you to import text from other programs such as *Easyscript*, *Paperclip* and *Wordwriter* etc.

An application called "Paint Drivers" is also included which is one of the more under-rated features of *GEOS*. This program allows you to convert *geoWrite* documents to *geoPaint* documents. The big advantage here is that once the one version is completed, you can add art work to any place in the document that you choose. In addition to that, if your *geoWrite* document contained numerous fonts, once it has been converted to a *geoPaint* document, the font files don't have to be on the disk in order to print out your document.

Paint Drivers also allows you to overlay pages to create some great special effects. It is the sort of application that you can spend hours with; have a great deal of fun in using it, and in the meantime, get some excellent rewards for your efforts. ❑







Business Software for your Commodore 64

Never before has there been such a great range of business and utility software available for 64 users

WORDPRO WITH TURBO LOAD AND SAVE
Sophisticated word processor with fast load cartridge.

WORDPRO 128 WITH FILE PRO
80 column word processor for the C128 with RGB monitor. Includes FILEPRO 128 database program.

THE FILER
Simple, but powerful, database using pull down menus.

THE PLANNER
Flexible financial spreadsheet with easy to follow menu structure.

TRI PACK
A combination of THE WRITER, THE FILER and THE PLANNER in one economical package.

WORD PUBLISHER
GEOS WORD PUBLISHER, it has more features than GeoWRITE and includes a 100,000 word spelling checker.

ELECTRONIC CHECKBOOK
Brilliant reconciliation program, with cross referencing.

HOME BANKER
A complete suite of financial planning programs. Chequebook organiser, Loan amortizer, Depreciation calculator, Savings organizer and Mortgage manager.

THE WRITER
Comprehensive word processing program with pull down menus, ease of operation and 50,000 word spelling checker.

THE KITCHEN MANAGER
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MAGPIE DATABASE
Very powerful, programmable data management program.

KWIK-WRITE
A full featured word processor, menu driven for ease of use.

KWIK CALC
Spreadsheet program that is perfect for beginners. 3500 active cells.

KWIK PAD
Desktop organizers. Database, Calculator, Diary, Memo Pad and more.

KWIK CHECK
Complete cheque reconciliation, with expense analysis.

SWIFT SPREADSHEET
The world's best selling spreadsheet for the Commodore.

HOME MANAGER
HOME MANAGER is a budget priced collection of 3 great programs for a low, low price. It features a word processor, a database manager and a calculator/notepad all in one integrated suite.

STOP PRESS!
STOP PRESS allows you to freely intermingle text and graphics in whatever manner you see fit.

VALUE WORD
Easy to use word processor for home use, includes 40,000 word spell checker, punctuation guide, letter formats and address and salutation guide.

VIDEO WIZARD
VIDEO WIZARD is designed to manage your video tape collection.

BUSINESS CARD MAKER
Why pay a fortune? Perfect for small business or individuals, this program allows the user to incorporate graphics onto the included business card blanks.

MINI OFFICE II

Never before has there been a program for the Commodore 64 that allows you to do so much for so little.

MINI OFFICE II is a tightly integrated suite of business programs that give you not only the power, but the flexibility to work the way you want to.

WORD PROCESSOR
A full featured word processing module which contains features that you would expect to pay much, much more for. Search and Replace, Word count, Block Move, Block Copy, Block Delete etc, all the features without the price.

DATABASE
A simple to use data filing system, the Database module can be set up in minutes even by novices, yet is fast, friendly and powerful. A special feature is that it can create a separate database from the results of a search.

GRAPHICS
Now you can easily create Pie Charts, or Bar charts or Line charts from your information. Data can be either inserted directly from the keyboard, or you can import data from your spreadsheet and display the graphics accordingly.

SPREADSHEET
This module provides fast, efficient number crunching. It has all the commands and mathematical function of spreadsheets costing hundreds of dollars more.

Pactronics

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QUEENSLAND : Pactronics Pty Ltd, 12 Stratton St, Newstead, 4006. (07) 854 1982
SOUTH AUSTRALIA: Contact NSW or Victoria office.
WESTERN AUSTRALIA: Pactronics, Unit 13, 133 High Rd Willeton 6155. (09) 354 1122

Available from your local retailer or call one of our offices

Suite 64

More than just a disk magazine!

by Andrew Farrell

SINCE WE FIRST launched the Suite 64 Disk Magazines some 14 issues ago, the Commodore 64 has seen a rapid improvement in the quality of available software. As a result, many previously commercial programs have been made available. One such program is *The Graphics Workshop*, which appeared on Issue Four. If you're into C64 graphics, this is an ideal package. It enables you to design your own sprites, custom character sets and animation easily. Several machine code routines are included for use in your own programs. As a special to readers of the Commodore 64 Annual, we have included the full documentation here for you to peruse before buying the disk.

The Graphics Workshop

● Welcome to *The Graphics Workshop*. This software is designed as an aid to understanding Commodore 64 graphics. Most aspects of using this package are covered in the Tutorials and Help programs included. This manual is provided as a brief reference guide for using some of the more complex features.

Features

● As you have probably discovered, designing graphics on the Commodore 64 is not the simplest of tasks. *The Graphics Workshop* is designed to make this job simple although it is also designed to do much more. There are comprehensive tutorials included to teach the basics of using the graphics and the design editors.

These include

● **Character Editor** with the ability to rotate, reflect, reverse copy and modify characters. Plus a special option to enable larger shapes to be built up from several characters adjacent to each other. In English that means you can construct your own custom characters for use in your own programs. Several sample character sets are included which you are free to use.

● **Sprite Editor** with similar capabilities to the character editor plus multicolour, trace, expand and shift. All your designs may be saved to disk or tape for later use.

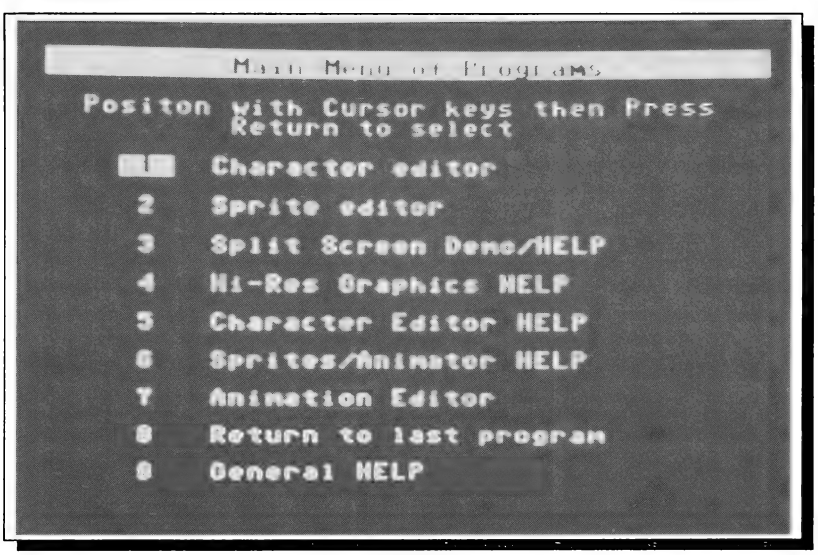
● **Split Screen Generator** sounds like a fairly complex utility. Really it's just a very useful routine that I am sure you will find many applications for. Put simply it allows you to split the standard text screen into three areas, the centre area having its own background colour and character set. A practical application many involve mixing a complex diagram with the standard Commodore graphics.

● **Sprite Animator** for all those times you wished your sprites would move just that little bit faster. Specify a direction, speed, number of frames and delay between each frame and off they go. Great for writing your own games or just having a bit of fun. Also comes with Animation Editor for playing around with your sprite designs.

● **High Resolution Graphics** is one of the most powerful features of the Commodore 64. With this utility you can easily use some of the less complex features of high-res graphics. It is not a replacement for Ultra-Basic or Simons Basic but you can take it anywhere, no need for a special cartridge.

● **Tutorials** on the use of all of the above. Providing an explanation of all of the above features so that the user may familiarize himself with *The Graphics Workshop*.

LOADING:
Type `LOAD"0:*",8' (return)
When the cursor reappears type:
`RUN' (return)



Main Menu

Title Pages

● After several seconds the Prime Artifax logo will appear. Press any key for *The Graphics Workshop* title page and then press any key to LOAD the main menu. After the version number appears press a key and a list of options will appear on the screen.

Main Menu

● From this menu you may select the majority of the available options in *The Graphics Workshop*. After using any specific function you will be returned to this menu. When you have finished using the workshop, return to this menu, remove the disk from your drive and then turn your computer off.

Use the cursor keys to position the selector next to the option you wish to use.

Press the return key when you are certain. Option number eight (return to last program) will only operate under some circumstances.

NB: Before proceeding it is important to understand how things are arranged internally. An area of memory has been set aside for storing your designs. This may be either a new character set or sprite set, but not both. The main menu is always in memory and does not have to be reloaded from disk - except after using Graphics Help.

Character Editor

● Before using the character editor, you will find it very beneficial to use option number five (character Editor Help). The following description will outline how to use the editor itself.

Once LOADED you may choose to redesign from the standard character set or to redesign what is currently in memory. On most occasions you will select `S' for standard. The main editing screen will then appear. At the top left of your screen a matrix will appear representing an expanded version of the character currently being modified. The binary value of each row is displayed in decimal to the right of each row. This is merely provided for reference purposes and is not essential in using redefined characters.

At the top centre is a brief menu or reminder of most of the functions available. Pressing the letter `E' toggles between the current menu and a second one not normally displayed. To the far right the character about to be modified is displayed in its normal form.

The lower half of the screen is a work area that reflects any changes you may make to the character set in memory. There are 255 characters in all, although only the first 64 are displayed initially. Pressing the Function One Key displays the next 64 characters.

The lower left part of the screen is blank. This area is where you may build up designs by placing several characters next to each other. To enter this area press the `*' key. The cursor keys are now active and any other character pressed will be displayed.

Designing a character

● To modify the character currently displayed in the top right corner press the (up cursor) key. A cursor will now appear on the matrix at the top left of your screen. Use the space bar to turn a dot on and the back arrow key to delete a dot. To finish modifying a character press the (up cursor) key.

Selecting a character

● There are two ways to select the character you wish to edit. The `a' and `z' keys display the previous and next character respectively. Using this method the full design of the character is also displayed in the top left matrix area. Because of this it tends to be a little slow. For faster selection use function key three and five. The character is only displayed in the current character box at the top right of the screen.

Summary of commands

Function 1 - Displays next 64 characters with wrap around.
Function 3 - Next character
Function 4 - Last character
Function 8 - Returns to main menu.

A- Previous character with full display
Z- Next character with full display
F- Rotate left
G- Rotate right

```
   I
J     K- Shift in that direction
   M
```

C- Copies character into character buffer
Shift C - Swaps character buffer with character about to be modified.
X- Reflects about the X-Axis
Y- Reflects about the Y-Axis

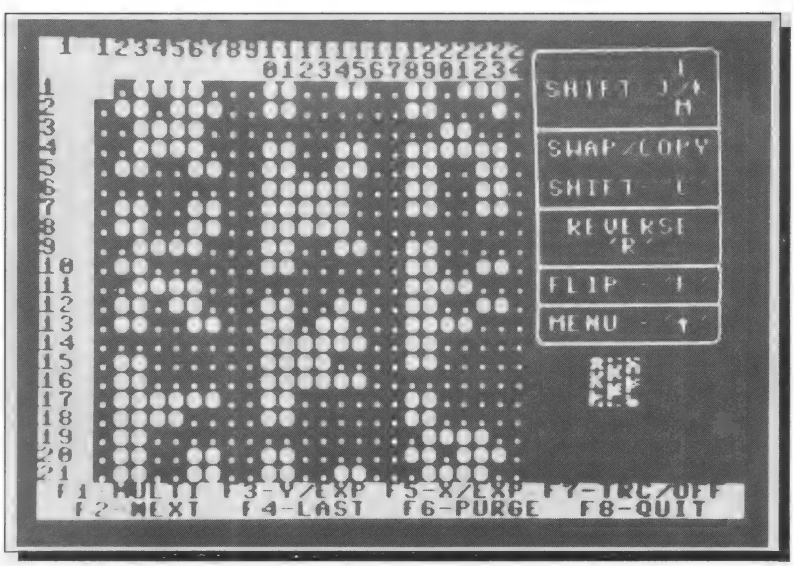
R- Reverse character
+- Fill character
- - Delete character
L- Load character set
S- Save character set

NB: The character buffer is a temporary storage area used for transferring character patterns from one position to another. To copy a character from one position to another press the `C' key, then move to the character you wish to copy to and press shifted `C'.

Sprites - animation editor and sprite editor

● NB: Before using either the Sprite Editor or the Animation Editor and associated routines please select option number six from the main menu.

The Sprite Editor allows you to design up to 32 sprites for use in conjunction



Sprite Editor

Cockroach Software
PO Box 1154
Southport 4215
(075) 916188

Cockroach Turbo Rom	$42.50 inc postage
Cockroach Graphics Utility	$69.95 inc postage

with the Sprite Animator or your own programs. Once the program is loaded the main editing screen will appear. The sprite number currently being edited is displayed in the top left corner. To the right is a menu system similar to that of the character editor. Pressing the (up cursor) key displays further menu instructions.

All the function keys are defined according to the lower status line. The Sprite being modified is displayed in expanded form and in normal form on the screen. Most of the controls are fairly self explanatory.

Command Summary

Function One - Switches to multi-colour mode. This effectively halves the X-resolution of your sprites.

Function Two - Select next sprite
Function Four - Select last sprite
Function Five - Expand on X-Axis
Function Three - Expand on Y-Axis
Function Six - Erase all sprites
Function Seven - Trace mode.
Movement of the cursor is affected by this mode. With TRACE/ON the cursor leaves a trail of dots behind it. With TRACE/DEL the cursor erases all dots it passes over and with TRACE/OFF cursor movement has no effect on the sprite pattern.

C - Copy
Shifted C - Swap (see character editor command summary for details)
R - Reverse
F - Rotate (NB: Part of the sprite may be lost in this process)

I
J K - Shift Sprite in that direction
M

Control C - In multi-colour mode selects colour to be used
1 - Modify colour one
2 - Modify colour two
3 - Modify colour three

L - Load sprites
S - Save sprites

What to do after you have made a design

● *The Graphics Workshop* is unlike most character editors or sprite editors that leave you wondering what to do once you have saved your masterpiece to disk. In this section I will describe the correct procedure for using your own custom characters or sprites in your own programs. Firstly a bit of technical information about graphics.

Both the Sprites and Characters that appear on the Commodore 64 are managed by what is known as the Vic II chip. This chip is only allowed 16K of memory to store any information it is going to display. So to display our own sprites or characters we must be sure the information about how they look is in the right 16K of memory.

When you first turn on your 64 the Vic II chip is looking at the first 16K of memory which is also busy storing a lot of other bits of information. So there is not a lot of room for our designs, but room enough.

To maximize what space is available we need to move the standard starting position of the BASIC program area up to make way for our graphics. A program called RAISE BASIC BOOT is included on the Workshop disk to do this for you. All you need to do is modify the first line that sets the filename to be loaded to the name of your program.

When you wish to use your program you should load and run the raise basic boot program first. This program will then automatically load and run your program. Now we have room for the designs we must next get them into memory too.

To do this include the lines that follow, only substitute the example names below for the name you gave them.

```
10 IF E = 0 then E = 1 : LOAD "character set",8,1
20 IF E = 1 then E = 2 : LOAD "sprite set",8,1
30 IF E = 2 then E = 3 : LOAD "routines",8,1
```

You will notice in line 30 we load in a program called routines. In this line you may load any special routines such as the sprite animator or split screen generator. Use the names included in the general help pages from the main menu.

Displaying your sprites

● Information on how to display your sprites is provided in the sprite animation help pages. To view this information select option six from the main menu.

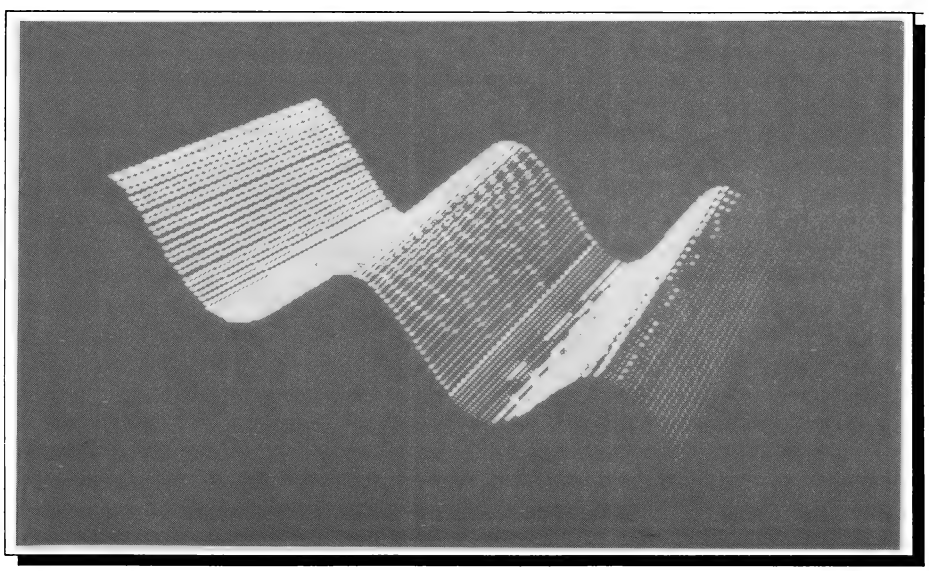
Displaying your characters

● As you will have noted from the P.C.G. Help pages, the character set is placed in an area of memory that does not usually allow it to be modified. By changing the pointer to its starting position we can make the 64 look at a different area of memory that contains our own custom character set.

Use the following POKE to do this:

```
POKE 53272,19
```

This will only work with character sets which sit at the area starting from 2048. This is the area used by *The Graphics Workshop*. ❑



Screen Output

ONLY COMMODORE AMIGA MAKES ALL THIS POSSIBLE.

When you first see a Commodore Amiga you'll be amazed at how much it can do. After you've seen its capabilities you won't be surprised that over a million Commodore Amigas have been sold worldwide.

That's because Commodore Amiga is the world's most advanced home and small business computer. It is also the leader in specialised applications such as Desktop Publishing, video graphic design and music.

It talks, animates, educates. Whether you're nine or ninety, student or teacher, Commodore Amiga has the software to aid learning. As well as these applications, it offers a wealth of entertainment with the latest hi-tech video games.

The potential of the Commodore Amiga doesn't stop there. Commodore Amiga has thousands of software packages available as well as a huge range of supporting magazines.

The Commodore Amiga 500 and 2000 make so much possible you're limited only by your imagination.

For further information and your nearest Commodore dealer phone (008) 023 233.

Commodore

JSA COM 0406

Commodore in Education

"What did you do at school today?"
"We learnt about the Commodore."

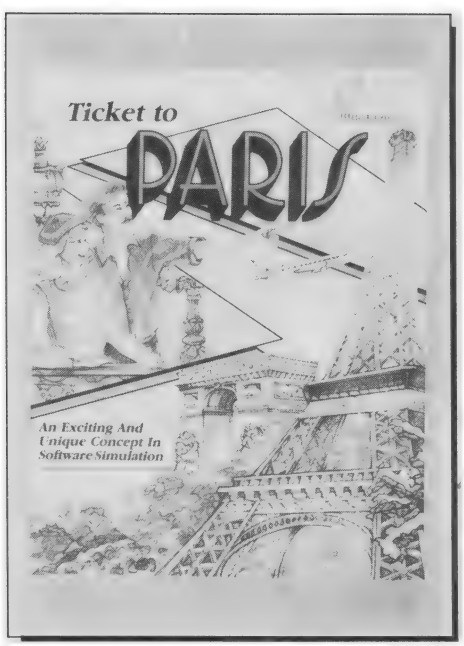
TO MANY SCHOOL students, "computer" and "Commodore" are virtually synonymous. The reason is, of course, that to many school students (indeed, most school students) the computer IS a Commodore.

The reason for this is not difficult to ascertain. Commodore computers are, by far, the world's largest selling brand. And the Commodore 64 is, by far, the world's largest selling individual model.

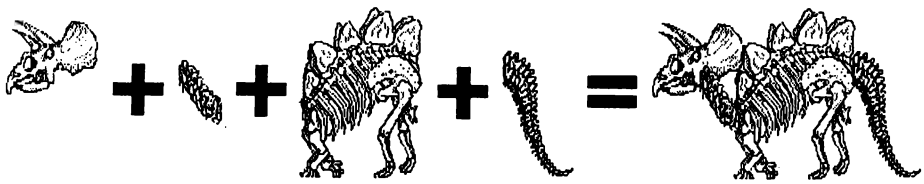
First released in 1983, the Commodore 64 followed the phenomenal success of the Commodore VIC 20. With over one million sold by 1982, the VIC 20 was the largest installed base of any computer built to date.

In a prophetic statement, Shearson/ American Express said "The Commodore 64 could be the most important new product introduced since the birth of the computer industry."

How right they were!



Ticket to Paris - as you book a hotel room, visit museums, explore the city or try French cuisine, you learn about French culture, language, history, art, banking, shopping and much more.



In 1983, sales of the Commodore 64 eclipsed even those of the VIC 20. In 1984, the Commodore 64 was voted "Home Computer of the Year" in several countries around the world.

Then, in 1986, Commodore announced the release of the 64C - a redesigned Commodore 64, complete with GEOS - a powerful new operating system.

What had been an extremely popular home computer now became even more popular. Most of all, its low cost allowed families to enter the exciting world of computing without spending a lot of money.

For exactly the same reason, Commodore 64s became the computer of choice for a huge number of schools, colleges and other educational establishments.

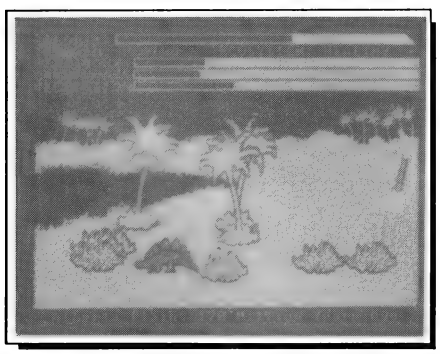
Instead of having one computer of the teacher's desk that the class could be shown, the low price of the Commodore 64 meant that schools could afford to place them on the students' desks - where they could be used.

Yet schools discovered that the low price of the Commodore did not mean a sacrifice in power of performance. It would more than stand up with the best company.

This power has been one of the Commodore 64's major strengths. It was, and is, a power that computer software writers found easy to convert into powerful programs.

Like the machine itself, the software range for the Commodore 64 is the world's largest, with a significant proportion of this written specifically for the education area.

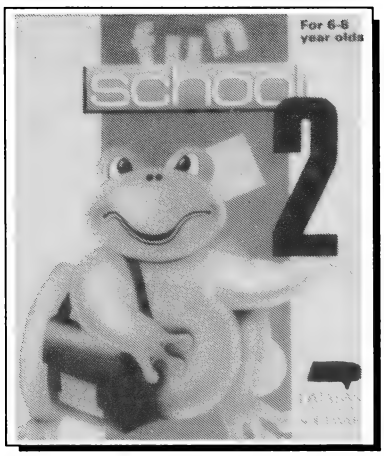
In a snowballing effect, the wide availability of a powerful, low cost computer meant that excellent software became available - at low cost. Because excellent low cost software was available, the machine itself gained further popularity. And so on.



Designasaurus - learning game with multiple skill levels. Survive as a dinosaur, create your own prehistoric giants.

The huge volume of software created its own economies of scale. Commodore 64 software tends to be lower in price than software for other machines.

The Dataflow Computer Services catalogue (specialists in educational software) shows several packages with versions for several types of computers. The Commodore 64 software is usually significantly cheaper than the same software for other



Fun School 2 series - Multiple subjects are presented in game format. Animation and sound effects are used.

computers!

For example, the popular Broderbund *Type!* software sells for $49.95 and $59.95 in Apple and IBM formats - yet the C64 version sells for only $39.95! *The Print Shop*, one of the most popular programs ever sold (and used in huge numbers in schools) is up to $25 cheaper for the C64 than other models.

It's fair to say that companies such as Dataflow not only helped promote the C64 - but were themselves promoted by it. Dataflow was established solely to meet the needs of educational software in Australia. A very significant proportion of their sales is in the C64 area.

They say success breeds success. In the case of the C64 and 64C, it's a truism that's true: to date over ten million Commodore 64s and 128s (the 64's "big brother") have been sold around the world.

When you think about it, that's a pretty staggering figure for one type of computer!

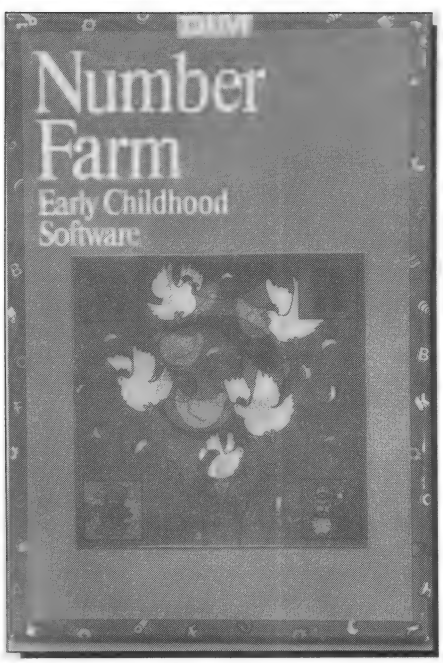
The fact that the Commodore 64 was selling very well into the education market did not escape Commodore themselves, of course.

To promote and market to schools and other educational bodies, Commodore set up a special division, with a function extending far beyond the normal "marketing" roles.

For example, it assisted school teachers in becoming computer "literate", Commodore believed, rightly so, that teachers needed to know the technology before they could teach it.

This assistance continues even today, with Commodore spending a lot of money, time and effort in keeping educators educated. Indeed, several large sponsorships and grants were announced during 1989 to various schools, colleges and universities - precisely for this purpose.

They assisted software writers, particularly in the education field. A typical example of the way this has worked for the benefit of education in Australia is in the Adelaide suburb of Angle Park, where Angle Park Computing Centre has been set up by the South Australian Department of Education (see the article on page 40).

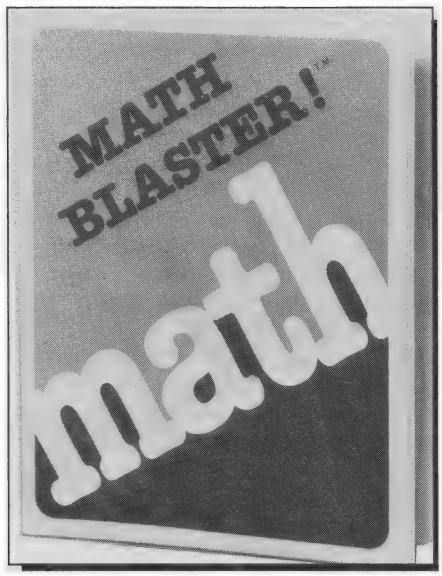


Number Farm - Early Childhood Software. A fun way for youngsters to learn numerals, number words, numerical order, counting skills, and beginning number concepts.

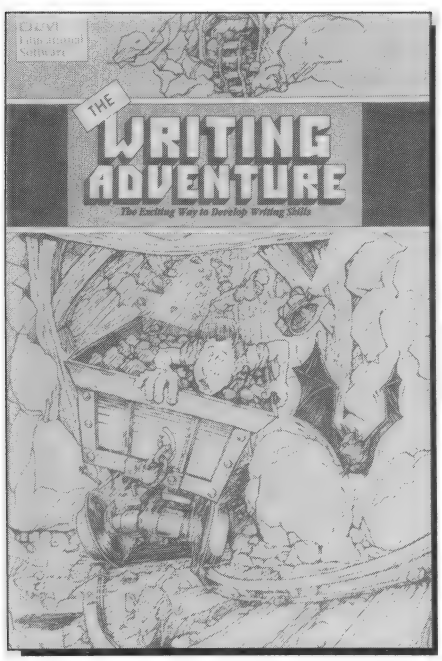
Angle Park Computing Centre

Angle Park has had a very significant input to the way computers have been introduced to schools, and how they continue to be used. Because of the penetration of Commodore 64 machines into the South Australian market, a large proportion of their work has been in the development of the C64 within the South Australian education system.

For instance, they have researched and documented the use of LOGO in schools. LOGO is a very powerful and intuitive language specifically intended to make computing fun for even the youngest of children. Schools in South Australia, with the help of Angle Park, have in-



Math Blaster! helps students master basic naths facts in an interesting and exciting way.



The Writing Adventure is for intermediate students who need practice or improvement, and stimulates them to write well. It offers instruction, guidance and editorial assistance.

troduced LOGO and the C64 to first year primary students with amazing results.

While Angle Park Computing Centre has been deeply involved in computer and software evaluation, even more significant has been their own softwaare output. Marketed under the "Satchel" lable, their software has become very widely used throughout the school system and indeed the home market - not only in South Australia, but in other states as well.

For further information or a Satchel Educational Software Catalog, contact Satchel at Angle Park Computing Centre, Cowan St, Angle Park SA 5010, (08) 243 5559. Fax (08) 347 1781.

Commodore work in very closely with the various state education departments to ensure that education is kept abreast of the latest developments.

Of special interest is the curriculum development work currently being undertaken by selected teacher's colleges/ universities and local primary schools.

This exciting venture, heavily sponsored by Commodore, will ensure a continuation of high quality Australian educational software specifically targeted to the needs of Australian students.

(For distributors of the programs illustrated, see the Education section of the Software Guide, page 68.)

Speed Reader II is designed to help increase reading speed and improve comprehension.

Education with Satchel Software

IT WOULD BE fair to say that until recently, we've been a little unfortunate "Down Under". We may be the lucky country by name but that doesn't necessarily apply to the Australia that gets talked about in the annals of international computer software research and development. Whereas the UK and the US have plenty of home grown software houses developing the software their countrymen demand, we in Oz are expected to accept whatever comes from overseas and make do.

Although things are now beginning to take a turn for the better, the reality is that unless one is prepared to spend big dough on designer software, one must suffer from the "adaptation blues". UK accounting software has to be "adapted" to our tax system - VAT talk being rather redundant. Imperial needs converting to metric, American English needs translating into fair-dinkum language, and educational programs need to be adapted to suit an Australian curriculum.

Well, there have been goings on down here. As the writers and designers of serious software begin to realise the potential market there is in Australia, they make time to alter pound signs, add u's to American "...or" endings, redesign tax functions and so on. But it's slow in places, particularly educational software. There is only one really satisfactory answer to the problem of Australianising software and it's this: get Aussies to write the stuff.

The problem with educational software has been that offerings from overseas are not always entirely relevant, accurate or appropriate to our children. Teachers and parents hesitate because our children weren't obviously the intended "target audience". Clearly the solution is to have the software developed in Australia, by people who are aware of the needs of Australian students and teachers, and who can therefore shape the software to slot conveniently into the curricula of the students at various year levels.

Until recently, that had mostly been too much to ask. Computers were always too expensive, incapable of the tasks required and hidden behind a curtain of esoteric "computerese". Teachers feared the machines and the idea of "learning a new language", assuming they were even offered the opportunity to consider the viability of using computers in the classroom. We've moved on a bit since then, happily.

Most schools are now using or considering the use of computers in some shape or form, and much of the fear has been dispelled. There's even a Centre down in South Australia dedicated to supplying schools, teachers and students with relevant, high quality and well priced educational software. Let's pay them a visit.

A visit to Angle Park

● Angle Park Computing Centre is an Education Department of South Australia project established entirely to research and develop the use of computers in primary and secondary education in

Granny's Garden (Satchel Software) - a structured adventure game for younger children.

South Australia. In this capacity, the Centre is constantly developing software for distribution and use in schools and to this end some years ago started the Satchel label of software products.

What in one way really sets Angle Park apart from other software development people is the sheer volume of information and knowledge they have amassed in the time the Centre has been operating. Remarkably, the Centre has been in operation since 1967, putting APCC in a unique position to assess and criticize the use of computers in education.

The staff come from various backgrounds, they include professional educators, programmers, document writers and support staff. The educators are experienced teachers and administrators and together share an expertise that covers all levels of primary and secondary education. At the same time as they are working at Angle Park, the staff is also involved in advisory and consultancy roles, making for busy workdays and well deserved holidays.

The staff at APCC share a common understanding that computers offer tremendous assistance and challenge to teachers and students alike. In recent years they have been heavily involved in developing programs to facilitate the use of various computers in schools - particularly IBM-compatible machines.

The aims of Angle Park Computing Centre can be roughly divided into four areas:

- training and development of teachers
- support of human networks and information dissemination
- research, monitoring and evaluation of schools' computing
- development of courses, materials and software.

So in fact, APCC goes far beyond simply writing and distributing software, but acts as an organising body, as well as a resource base for schools in South Australia, and beyond. APCC are involved in developing a network and BBS system for South Australian schools, thus allowing teachers to access a number of databases, and a far greater information base than would ever otherwise have been possible. This sort of work requires serious dedication and above all, a level of expertise normally not expected from anything less than a private consulting firm or the like.

What's in Satchel?

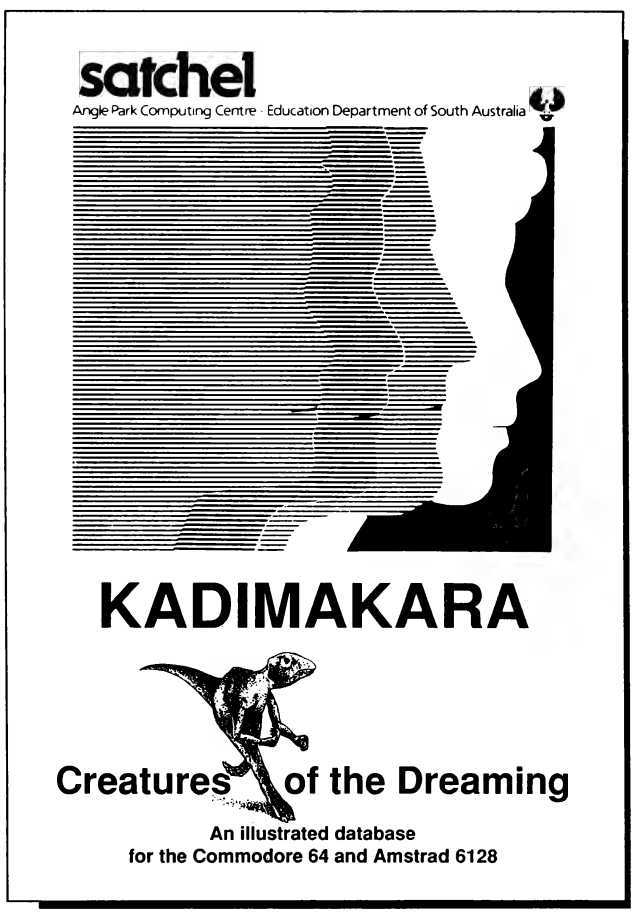
Satchel, although developed primarily for use in classrooms and in the context of a balanced curriculum, can also be used to great satisfaction in the home as a support tool to classroom work. In fact, a lot of the Satchel range has so carefully been "disguised" as fun software that children will likely play these "games" without ever consciously recognising the underlying principles being taught. Some Satchel software titles can thus be seen as an alternative to shoot-em-ups and adventures, as well as, more obviously, educational tools.

Conscious of the nature of software usage in schools and at home, Angle Park have created an attractive pricing policy to accompany their Satchel range. Aware of the critical issues of copyright and price, APCC have identified these needs:

- a relatively low unit price for packages
- a reasonable site licence policy
- availability of additional manuals with the site license, and
- availability of concessional packages for student and teacher use at home.

Now, although not all of the above are really relevant to the average reader of this article, they do go to illustrate a point well: a local software developer with a local distribution area can afford to spend time sorting out matters that an overseas company might not be able to consider.

Satchel offers a low, single-unit price and a site licence (mainly for a school environment) about 15 times the unit price. Also, "attractive" prices are offered for students and teachers willing to buy an extra copy for private use.


satchel
Angle Park Computing Centre · Education Department of South Australia
KADIMAKARA
Creatures of the Dreaming
An illustrated database
for the Commodore 64 and Amstrad 6128

The Satchel product range is the result of years of research and development in South Australian schools. As Angle Park explain: "The Satchel product range results from extensive experience with the use of computers in schools and reflects the best classroom practices in implementing computer applications. The Satchel packages exploit fully the capabilities of the equipment and the potential of the computer as a tool for use in the classroom by students and teachers. Each package is tested in the classroom environment, has high quality documentation and must meet strict Education Department approval guidelines."

What lies ahead

- With the mainstream slowly catching up with Angle Park, the Centre has chosen to operate on the principle of providing a service in those areas of activity that cannot be reasonably expected to be serviced within the school community. This in practice means that the Centre is expecting that as schools acquire knowledge and

understanding, they will no longer need to rely on APCC for support, but will rather train and equip teachers internally. Angle Park are also working towards decentralising the training programs away from the Centre by developing self-teach packs that teachers can use and learn at a time and place convenient to them.

APCC is also spending time on the further development of Satchel software. It is refreshing to see a quality, well-priced alternative to the commercial educational packages on the shelves. Angle Park Computing Centre are a force to be reckoned with in South Australia and are now making their presence felt in other states as well, which can only be a good thing.

Here's a closer look at the range of Satchel titles :-

Mathsbooster

● High on the list of the most mundane things to do in one's life must be memorising the multiplication tables. Our memories paint a picture of a blackboard, covered in columns of numbers and equations behind the "Drill Instructor" cum teacher sitting pensive at a very big desk. Nightmares are made of this. Fear would consume your youthful confidence as your name was called. What embarrassment when you couldn't remember the answers.

Thank goodness there's someone out there with a little more creativity than the Byzantine educators some of us were unlucky enough to have! *Mathsbooster* "disguises" the rote learning of the multiplication tables and the other arithmetic operations behind a game of *Space Invaders*.

As pieces of space junk fall from geostationary orbit towards the earth, it is the sdent's task to save the world by having each piece of debris intercepted by a rocket which then carries it safely off into space. The rocket however, will only intercept the piece of debris if the answer to an equation is entered via the keyboard. If the equation is wrongly answered, the pieces continue to fall, but if the answer is correct, there's one less piece left falling.

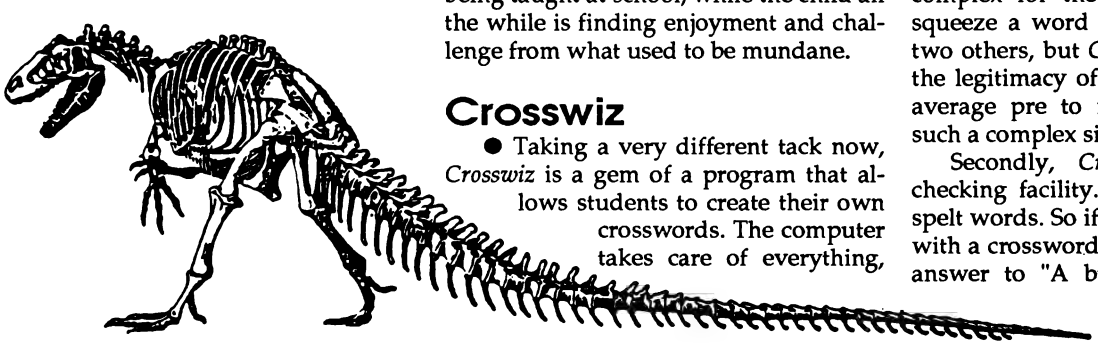
There are six pieces at which a rocket must be fired, so each "wave" consists of six equations to answer. The speed at which the pieces fall increases with every screen completed, until it's pretty well impossible to beat the pace. The challenge of beating the clock is addictive, even if it all only comes down to solving equations.

After every successful completion of two "waves" of debris, the student has to intercept the "shuttle". This makes for a nice sense of achievement.

Behind what the child sees, there's more going on. The teacher or parent can control the level of difficulty and type of equation being drilled, so as to best help each individual child. *Mathsbooster* can drill the child in all the four areas of addition, subtraction, division and multiplication, or some combinations of these and for each of these the parent or teacher can determine the precise number range the child will be working with, as well as this, the speed at which the objects fall can also be controlled, to help make the game a challenge for every child.

So, the game could effectively be used in a classroom situation with each child working on their own copy of the program; that copy entirely customised to the needs and weaknesses of that child.

At home, *Mathsbooster* can be used effectively to support the arithmetic work being taught at school, while the child all the while is finding enjoyment and challenge from what used to be mundane.



Crosswiz

● Taking a very different tack now, *Crosswiz* is a gem of a program that allows students to create their own crosswords. The computer takes care of everything, from the positioning of the words in the crossword, to the printing out of an attractive, neat final product. It is recommended for students from approximately grade 3 upwards, although with assistance, younger children might also find enjoyment from it.

Immediately obvious is the user-friendliness of the package, this being virtually a trademark of Satchel. You simply load *Crosswiz*, and you are presented with the main menu. From here it's straight into creating a new crossword. The child enters a word via the keyboard, positions it on the board (20 x 20 characters) and then provides a clue. The next word is then entered into the computer, which automatically positions that word in a logical position. If the student preferred the word to go elsewhere, the program will automatically determine every possible position for the word within the crossword. When the student is happy with the position of the word he/she drops the word in and then enters a clue. This continues until there is no more room for words (usually about 40 words will fit) or the student decides there are enough words entered.

As a jazzy little detail, the student can now alter the crossword to get away from the basic square shape by removing some of the back spaces that are left behind. Different shapes can be drawn to create impressive designs.

The final product can then be printed out to give to fellow students or family members. It is easy to imagine what home or class projects can be developed around this program. Whatever the case, the student receives a tremendous sense of achievement and a present to give a friend.

A few points to note. I was able in my experimenting to create a crossword too complex for the *Crosswiz*. I wanted to squeeze a word quite correctly between two others, but *Crosswiz* didn't recognise the legitimacy of this. Still, I doubt your average pre to mid-teen would devise such a complex situation.

Secondly, *Crosswiz* has no spell-checking facility. It will accept wrongly spelt words. So if your child presents you with a crossword to do, be prepared. The answer to "A big grey animal with a trunk and tusks" may well not fit in

the space provided if the expected answer is "Elefant". Still, I guess this adds another dimension to *Crosswiz*, educationally speaking!

Picture Book

● Arguably one of the world's cheapest desktop publishing packages ever developed, *Picture Book* allows students to write their own book, with pictures too.

The book can be up to 10 pages long, with pictures and text combined on each page. On disk, over 200 graphic images are provided for the child to use in the book, or alternatively the child can create his/her own to give a more personal touch.

"Arguably one of the world's cheapest desktop publishing packages"

The screen is divided up into two windows: one for the picture and one for the text. The text window is in fact a simplified word processor, allowing up to six lines of text per page. It includes word-wrap, centring and editing facilities, giving primary school children an introduction to word processing at the same time.

Some trouble has been gone to in the graphics department as well. Your own graphic images or those taken from disk can be shrunk or enlarged, flipped horizontally and their on-screen colour can be changed. A number of images can e pasted onto one page at the same time, also allowing students to create reasonably complex pictures from the images provided.

As an added feature, the entire book can be dumped to a printer, page by page. The child can then colour the pictures in as a related exercise. From the point of a teacher, the applications are boundless. The accompanying manual recommends a number of possible applications such as progressive stories, where a different child writes each page, or an anecdotal story where the child relates an experience accompanied by pictures.

Jara-Tava, the Isle of Fire

● Adventure game for 9-10 year olds that takes place on a mythical tropical island. Actually tropical islands is more accurate, for while the adventure begins on an island named Jara-Mau, the adventurer must travel to Jara-Tava, the infamous Isle of Fire, to be successful.

According to the teacher's guide accompanying the program, Jara-TAva has been as much of an odyssey for the authors as it will be for the players. Though it now bears little resemblance, *Jara-Tava* began as *Treasure Island* or *Treasure Isle*, a

A page from the Resource Book of Java-Tara, the Isle of Fire

Jara-Java
THE ISLE OF FIRE

OTHER ACTIVITIES

LANGUAGE

Writing and Speaking

Adventure games generally, and Jara-Tava specifically, can spark the imagination and are excellent in motivating children to write.

Keeping a Diary

The children could keep a diary of their experiences in the adventure. This diary could later provide the basis of a book about the adventure.

A True Relation of the Life and Death of Sir *Andrew Barton*,
a Pyrate and Rover on the Seas. Tune, *Come follow my Love, &c.*

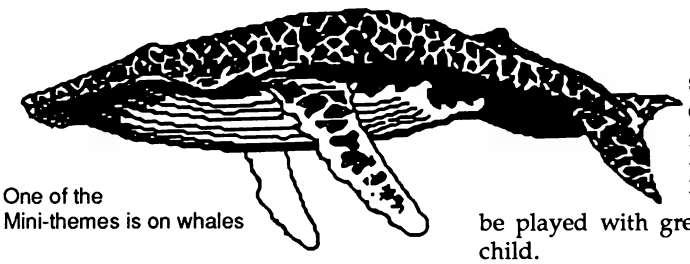
When Flora with her fragrant flowers
bedeck the earth so trim and gay,
And Neptune with his dainty showers
came to present the month of May;
King Henry would a hunting ride,
over the river of Thames past he,
Unto a mountain top also
did walk some pleasure for to see:
Where forty Merchants he espyed,
with fifty sail come towards him,
Who then no sooner were arrived,
but on their knees did thus complain:
An't please your Grace, we cannot sail
to France no voyage to be sure,

Upon the main-mast I'm hanged be,
if twelve before I miss one shillings breadth.
Lord Howard then of courage bold,
went to the Sea with pleasant cheer,
Not curb'd with winter's piercing cold,
though it was the stormy time of year,
Not long he had been on the Sea,
on more in days than number three,
But Sir Henry Hunt there he espy'd,
a Merchant of New-castle was he,
To him Lord Howard call'd out amain,
and strictly charged him to stand,
Demanding then from whence he came,
or where he did intend to land:
The Merchant then made answer soon,
with heavy heart and careful mind,
My Lord, my ship it doth belong
unto New-castle upon Tine.
Canst thou shew me, the Lord did say,
as thou didst sail by day and night,
A Scotish Rover on the Sea,
his name is Andrew Barton, Knight?
Then the Merchant sigh'd and said,
with grieved mind and well-away,
But over-well I know that Wight,
I was his Prisoner yesterday;

Letters to Family

As an alternative to keeping a diary the children could write letters to members of their family detailing their travels.

Jara-Tava Resource Book - Page 4



One of the
Mini-themes is on whales

public domain and Pathweaver adventure available for some time in South Australia. During this time it established itself as something of a standard for middle primary children or with those new to adventure games. When the authors began considering options for an illustrated adventure for the middle primary school it was decided to capitalise on the success of Treasure Island and to extract the full potential of a "proven winner". But fear not! While the basic premise and some locations remain unchanged, there is a great deal that is new.

Three specific aims were decided upon. Firstly, the adventure game had to reasonably challenging for children aged 9-10 years old, as well as being enjoyable and of good quality. Secondly, it was accepted that the program would be developed for incorporation into the greater theme of pirates. Thirdly, the game should incorporate a number of smaller elements which should stimulate the children's thinking on the various themes presented in the program.

The general aims expressed in the teacher's guide speak of something greater than simply an adventure game. These aims are too many to list, but point to something more akin to a major class project incorporating *Jara-Tava*. This adventure game is therefore only a small part of the greater project as proposed by Angle Park. In fact, included with the program is a resource disk which includes many hours worth of additional material for use by children in the classroom.

This leads to one important point. Although the educational software is generally for use in the home, and under parental supervision, an exception to some extend must be made in the case of *Jara-Tava*.

Clearly, it would be too much to ask of most parents to create something which truly exploits the full potential of *Jara-Tava*. As the teacher's guide explains "*Jara-Tava* requires the skilled hand of an enlightened and caring teacher to capitalise on the possibilities provided." This said, with no greater effort than would be normally expected of parents, the adventure game itself can be played with great enjoyment by the child.

The adventure begins

● Quite a leap forward for the authors and the students who haven't played many adventure programs before, *Jara-Tava* incorporates full colour graphics and an intelligent parser that allows the children to enter full sentences (no more stilted two-word phrases!). The adventure is loosely based around the system developed in "Twist-a-Plot" books where the child makes a number of decisions in the adventure which determine the direction of the game - for better or for worse, presumably.

The synopsis is simple enough. *Jara-Tava, The Isle of Fire* is an adventure in which the player is in search of pirate treasure on deserted tropical islands. You have been bequeathed a map of an island called Jara-Mau and the means (traveller's cheques and airline tickets) to travel to it. The adventure proper begins as a launch drops you off on a beach of Jara-Mau. Your goal is to recover the treasure of Captain Kidd hidden somewhere, you are led to believe, on the island of Jara-Mau.

To find and recover the treasure the adventurer must do three main things. Firstly, recognise that the treasure is on Jara-Tava, and not on Jara-Mau; secondly, find a way of getting over from Jara-Mau to Jara-Tava; and thirdly, recover the treasure from Jara-Tava before the Volcano erupts and destroys the island.

On Jara-Mau, the adventurer wanders around under no threat. There is no clock to beat and the intention of the authors here is to challenge the child more on logic, reasoning and the other principles behind playing adventure games, rather than making it simply a race against time. A map has been given which can be referred to at any time, this gives a picture of the island and an indication of where the child must be. Since the island is rather large (over 20 different locations), this isn't really giving the game away. Strewn over Jara-Mau are a number of items which may or may not be of use in solving the adventure. It's really up to the child to decide.

Don't be deceived into thinking that since this adventure is for 9-10 year olds it's going to be a walkover. In fact, I recommend parents and teachers, particularly if you haven't played a computer adventure game before, to have a go. And I mean WITHOUT reading the answer pages of the teacher's guide.

Cleverly, the adventure has been designed around a number of crucial decision times - four in all. These determine the fate of the adventurer and the path of the game. A number of hints are placed around the game to encourage the right answer.

Worthy of note is that there is not just one correct way to win this game. In face, there are four ways of crossing the shark-infested channel between Jara-Mau and Jara-Tava, and once on Jara-Tava, three more ways to find the hidden treasure. So two children sitting next to each other can both find the treasure, but having played two totally different games! Thus the challenge to the adventurer is to make each decision on the basis of the information known to him/her. This calls for concentration, logic and thinking far enough ahead to consider consequences of ac-

tions not yet performed.

Jara-Tava is by no means a very difficult or involved adventure and it was never intended to be that. It is a good introduction to the logic and style of larger adventure games such as Level 9 and Sierra games.

Where *Jara-Tava* wins over the rest however, is that it is tailored specifically to 9-10 year olds, in the context of their curriculum. This adventure is intended as a stimulant to encourage thought on pirates, sharks, submarines (yes, there is one in the game somewhere!) and other themes encountered in the game.

Now, parents may not be able to exploit the full potential of the package, particularly the resource disk with the additional database and other programs, but you will find that with only a little push, children will go a long way all on their own.

Jara-Tava has been well pitched to the middle to upper primary age group. It's simple enough that it is immediately accessible, even to the child who's never seen a computer keyboard before, yet challenges the child's powers of reasoning and deduction. Best of all, this game is fun, and making education fun while not compromising standards is a challenge Angle Park Computing Centre are well on the way to licking.

Available from Satchel Software, Angle Park Computing Centre, Cowan St, Angle Park, SA 5010. (08) 243 5559. Fax: (08) 347 1781. RRP for the programs mentioned here is $40.00 each for the C64. ❑

C64 Programmer Subroutines

by David Williams

Every programmer needs a library of subroutines. Why re-invent the wheel? If you come up with a good error-handling routine, you should use it in all your programs that need one, instead of writing a new one each time. In fact, a modular approach that this can lead to, is a good habit to get into when programming. Here are some subroutines that I use, and you may find useful:-

Random numbers

Random numbers in assembly language are normally very hard to create.

Usually some obscure formula is used, but it is possible to use the SID chips voice 3. This is done by setting the high byte of the frequency register, and selecting the noise waveform. The volume of the SID chip is set to zero.

```
10 random = 54299 ;random number
generator
20 lda #$ff30 sta 54287 ;voice 3 frequency
40 lda #$8050 sta 54290 ;voice 3 control
register
60 sta 54296 ;volume
```

and from then on, just lda random for a number from 0 to 255.

Print @x,y

Some computers offer a 'print@x,y' command, that allows the user to print to a certain part of the screen. On the 128 this can be done by the Char command. On the 64 however, the vertical position can be set by location 214, and the horizontal position by location 211. Put a print command between the two.

```
10 poke 214,15:print :poke 211,10
20 print "hello world"
```

The function keys on the 128 are easily defined by the Key command. However, there are actually ten function keys, shift/run-stop and help being the other two. They can be redefined by:-

sys24812,,8,,,"string" for shift/run-stop, and sys24812,,9,,,"string" for help.

Fake cursor

How about a telecommunications simulator where a cursor zips along, leaving characters behind it? To improve this, you could add some sort of sound.

```
100 for i=1to len(b$):a$=mid$(b$,i,1)
110 print"[rvson] [rvsoff]";
120 for j=1to 50:next
130 print"[left] [left]"a$;:next:next
140 return
```

To use this, put your message in the variable b$ and gosub 100.

Wait!

Instead of the usual "press a key to continue" type message, if your program uses a joystick, you can use:-

```
wait 56320,16,240
```

to wait for the fire button to be pressed. Note that this is for port two. For port one, use 56321.

Error trapping

The Commodore 128 has some very good commands to help you edit BASIC 7.0 programs. Here's a quick bug-trapping routine to add to your programs.

```
1 trap 2:goto 10
2 scnclr :help :print err$(er):end
10 program starts here
```

80 column fade in/out

The 80-column chip in the 128 can provide some pretty good special effects, due to its multitude of registers. Here is a fade-out and fade-in routine for the text screen.

```
.10 for i=8to .step -1
20 sys 52648,i,23:for d=.to 99:next
30 next :sys 52648,96,34
40 scnclr :rem create new screen
100 for i=.to 8:for d=.to 99:next
110 sys 52648,i,23:next
```

Menus

I have written several menus for disks containing both 64 and 128 programs. The menu therefore needs to determine whether the computer is a 64 or 128, in 40 or 80 columns

```
10 a=40:if fre(1)=fre(.)then 100
20 graphic clr:if rgr(.)=5then a=80
```

This sets the variable a to 40, for 40 columns. The amount of free memory function is then used, as on the 64 the number between the brackets is insignificant. Fre(1) will be equal to fre(.). On the 128, however, the two return the free memory in bank 0 and 1, and it is unlikely that they will be even close. If they are equal, the computer is a 64, and so we jump to line 100. If not, the computer is 128, and the Return GRaphic function is used to toll us if we are in 40 or 80 columns, and the variable a changed accordingly.

Assembler print

A lot of assembly language listings I have seen print messages by using a loop and CHROUT. However, there are lots and lots of useful routines in the Kernel. At $ab1e is a routine called STROUT (string out, as opposed to character out) which does just what we want.

```
10 strout = $ab1e
20 lda #<message
30 ldy #>message
40 jsr strout
50 rts
60 message .byte 'text up to 255 characters'
70 .byte 0 ;terminating zero byte required
```

There are so many useful subroutines, and quick programming tricks to be done on a Commodore 64 or 128. This short article can't even touch the surface. I hope you will find these examples interesting, and even inspiring. ❑

So I tried Wordprocessing...

ONE OF THE first "useful" things people like to do with a computer is write. There's more to it than switching the machine on and typing. There has to be a way to store the text in memory for immediate use, and also to store it somewhere permanently for later use. And, of course, there has to be a way to get it to a printer.

A word processing program makes the computer do all of those things and more. Word processors can be as simple or as complex as you like, but they all allow text to be entered, manipulated, "dressed up", stored permanently and printed.

Word processors can be categorized into two main groups - WYSIWYG and post-formatting.

WYSIWYG

● WYSIWYG means "What You See Is What You Get". That is, text is formatted as you type it in, so that the appearance and layout of your text on the screen is always a true copy of what will appear on paper at print time.

With a graphics oriented computer, the screen presentation can be particularly pleasing, with italics, bold, underline, super and subscripts, all appearing on screen as they will on paper. Additionally, on any computer whether graphics-capable or not, margins, pagination, indentation, text-centring - in fact, any feature not requiring the display of unusual characters, will also be shown properly on screen as it will appear on paper.

Some programs do not utilise the full capability of the screen, and will not fully display enhancements such as underline, bold, or italics on the screen. Instead, the enhanced text may be highlighted in some fashion, say by reverse video, or by the display of the control codes used to generate the enhancement.

These programs are not truly WYSIWYG but you still get the main benefit, which is seeing your text being laid out on the screen as you type it in. Great for complex documents with lots of paragraphing, indentation and paragraph numbering.

GeoWrite is a good example of a full WYSIWYG program, while *WordStar*, which runs under the CPM operating system on the C128, is an example of partial WYSIWYG.

Post formatting

● Post-formatting word processors, as the name suggests, do not format text as it is entered, but rather wait until after text entry is finished or temporarily abandoned and an output command such as PRINT or DISPLAY is issued. As a result they are simpler and don't need the gross amounts of program code required by the WYSIWYGs.

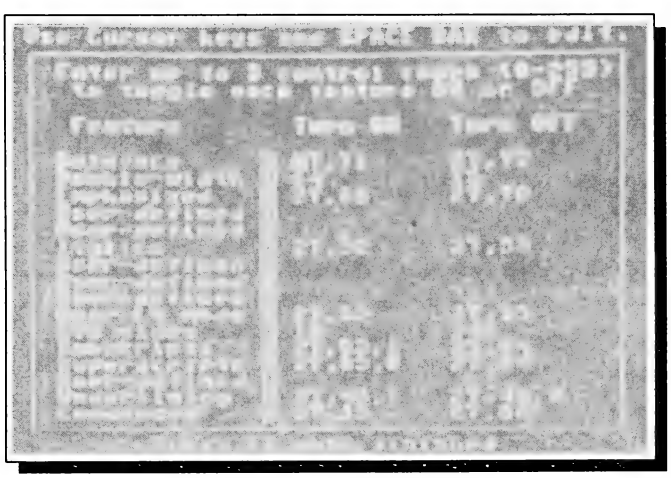
Generally they employ two distinct modes, EDIT and OUTPUT. The default is invariably Edit mode which is used to enter new text or to modify existing files. In this mode, the full screen-width is used and no attempt is made by the program to show the effect of margins, indentation or printer features such as bold, underline, etc. While entering text, you should not try to make the document look right on the screen - the program will do all that when you issue an OUTPUT command such as PRINT or DISPLAY.

The OUTPUT mode is used to print the text either on the screen, on disk or, most importantly, on paper. While in this mode you cannot edit your work, but if you print to the screen, you can check the layout, then return to EDIT mode and revise any layout commands which are not giving the desired results.

In Edit mode, formatting and printer commands are entered as they are needed, just as in a WYSIWYG program, but instead of having an immediate on-screen effect, they usually appear as some form of symbol followed by some abbreviations and numbers. No action is yet taken on them. At print time, the program examines the symbols and following code and translates them into instructions which either the program itself or the printer can understand and respond to.

For example, let's say you set left and right margins of 10 and 70 respectively, and you're working on an 80 column screen display. Usually, your program

Fontmaster 128



The Write Stuff printer codes

will want some kind of special, non-printing character to tell it that the information which follows is to be acted upon, not printed - for example, a reversed asterisk. This would be followed by abbreviations for the control instructions, rather like this:-

***lm10:rm70**

The formatted text-width is 60 columns, but in edit mode your on-screen text will still be a full 80 columns wide. The control code sequence "*lm10:rm70" will be visible on screen and will not be interpreted.

In an output mode, such as print-to-screen (commonly called Display or Video Preview), the control codes will be intercepted by the program and the margin information incorporated into the screen display, so that now the text will be 60 columns wide and set 10 characters in from the left. Other formatting commands and printer control codes will be treated in much the same way.

Operation

● There is a further subdivision of program types which may affect your personal preference, and that is whether a program is menu-driven or command-driven. In a menu-driven program, each function of the program and printer is accessed via the choice of an item on a menu. That choice may lead to another menu, and that to another and so on, until the required command is reached.

The big advantage here is that you don't have to remember seemingly illogical keystrokes to get your desired result - hopefully the menu will have been carefully designed so that the choices you are required to make are logical and lead you intuitively to the command you want. A disadvantage is speed, or rather, lack of it - things can get pretty slow as you hunt and peck your way through a complicated menu system. *SuperScript* from Precision Software is an example of a menu-driven word processor.

In a command driven program, instructions are issued directly by certain keystrokes in combination with a series of master keys, such as Control, Escape, Run/Stop, Commodore key, etc. The advantage is speed - the disadvantage is that in a powerful program there are so many features to be accessed that inevitably, many keystroke combinations are illogical and easily forgotten. Examples: SHIFT RUN/STOP for "go to end of text", ESCAPE SHIFT < for "Italics on".

Paperclip III from Batteries Included is command driven. It runs out of logical commands for some of its functions, but is otherwise so good and powerful I am prepared to forgive it for any little foibles it may contain! Likewise *WordStar*.

Probably the best system is a combination of commands and menus, and here, *SuperScript* shines. Under menu control, to go to the end of your document you would hit the F1 key to call up the main menu, then cursor across and highlight "Go". Another menu appears, listing choices of where in the document you may go.

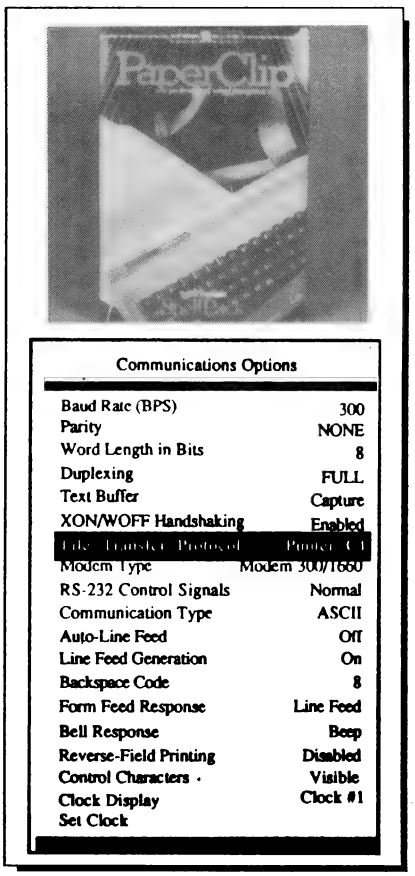
Cursor across and highlight "End" and the program will respond and take you to the end of the document. Under command control, you would enter F1GE and obtain instant response. (F1 to call the main menu, G for Go, E for End.) There are also commands based on CONTROL plus one other key which give rapid, two-keystroke access to the most commonly used commands, rather than the three or four keystrokes often required by the menu structure.

Technical terms it helps to know about

● **"Wordwrap"** is a mysterious term you'll often encounter when dealing with word processing or with any program which presents text on the screen, such as a communications program. It is merely the facility whereby a word won't be broken at the end of a line on the screen or page.

Instead the program works out if there's room on the line to place the word, and if there isn't it is "wrapped around" to the next line. Virtually all word processors use wordwrap and virtually all of them allow it to be turned on and off.

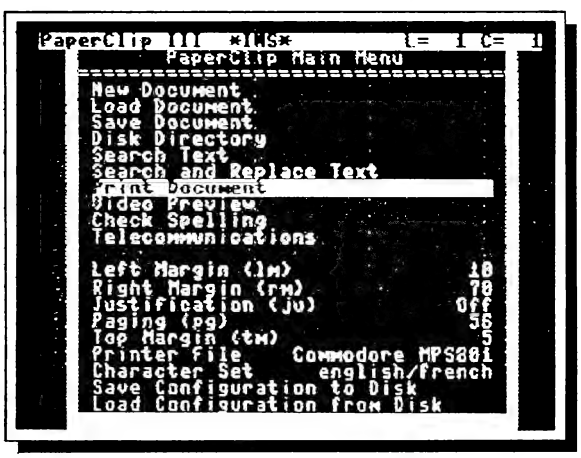
"Defaults" simply means the setting or series of settings the program will assume unless told otherwise. For example, many word processors default to a left margin setting of 10 and a right margin of 70, though of course, you can set them to anything you wish. There are many other settings which the program must know, and which will contain



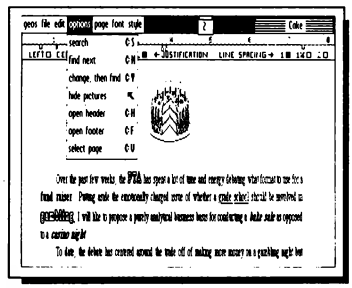
Paperclip III

default values so that the program will work, even if you forget about them.

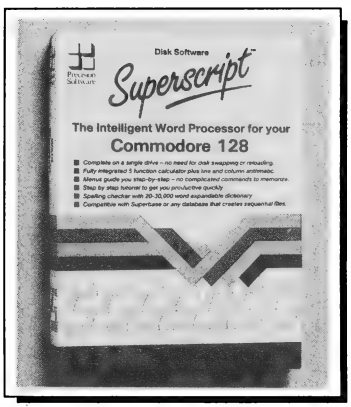
"ASCII". In any dealings with text, communications and disk files, you will encounter the term ASCII, an acronym for "American Standard Code for Information Interchange". Pronounce it as "ass-key". If we all do that, that will be about the only thing standard about it! Every computer manufacturer, including Commodore, has its own version of AS-



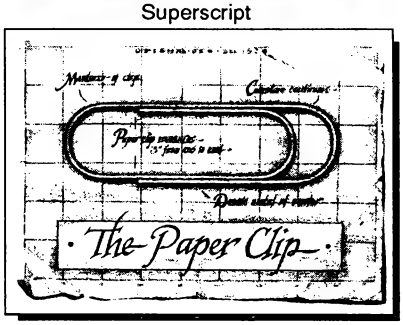
Paperclip III main menu



GeoWrite



Superscript



Picture from Paperclip III

CII, and that has spawned an industry which does nothing but supply translators, called interfaces, which allow Brand X computer to talk to Brand Y printer and have the Queen's English print out on Brand Z paper. If you haven't got a printer yet and are intending to buy non-Commodore, you will need an interface, either as an accessory or built into the printer.

"**Display**". If you can track down a C128, it's a versatile computer and can drive either a 40 or 80 column monitor, plus a TV - all three together if you're playing to an audience! If you're limited to one or the other, then make sure that the word processing software you choose works in the number of columns you're limited to. Most programs allow a choice, but there are exceptions.

What should you look for in a word processor?

● Well, like just about any other purchase you might want to make, it depends on your needs. If your word processing will be limited to the occasional letter or straightforward use of your computer as a substitute for a typewriter, then a simple word processing program is what you need. You may not even have to pay for it. *Run* and *Compute!*, both Commodore magazines from the USA, have published type-in word processors for both the 64 and the 128.

Having used both (*Runscript* and *Speedscript*, respectively) in the 64 versions which are really very good, I can see no reason why the 128 versions should not be just as good or better. Other magazines jumped on that bandwagon, but these two were the first.

I suggest they, and similar programs from other magazines, represent the best value for money of ANY word processor because they are yours for the cost of a magazine plus about six hours of your time. If you don't cost the time you spend on your hobby, that's about six dollars all up!

If that's too much, try a user group.

On the other hand, if you're a serious or even intermediate writer you will, at some time, want some bells and whistles. Things like ASCII translation, full control over the printer driver, comprehensive range functions including column-move and column-delete, automatic horizontal and vertical addition in tables of figures, inbuilt calculators, mailmerge, integration with a database, fast cursor movement, telecommunications, inbuilt spell checker, automatic detection and use of RAM expansion, flexible use of disk drives. The list is endless and limited only by the programmer's imagination and the price the market is prepared to pay. ❑

Word processing glossary

Justified type: This means that you can format the page so the lines begin and end exactly at the left and right margins. The computer adds the correct amount of space between words to allow this to happen. Many books and magazines use justified type, it can look very professional. This article, for instance, is set in justified type. It only works well with fairly wide sections of type, though. Set in columns too narrow, justified type can look very strange.

Flush left, ragged right: This is the ordinary way of formatting a page. It results in an even line down the left hand side of the page, and the lines ending within a right margin, but not evenly. Flush left, ragged right is basically what you get from an ordinary typewriter.

Bold and italics type: Simple commands in the word processing program will allow you to nominate certain pieces of copy that you wish to be bold or italics. It is a neat way of emphasising a word or sentence, and looks far more professional than underlining, although you can of course underline should you want to.

Spelling Checker: Runs through text and stops when a spelling error is detected. Allows you to add and delete from the dictionary thus creating your own dictionary with specialised words.

Subscripts and superscripts: These are the little numerals or characters that appear slightly above or below the line of type. They are often used in academic documents, and are simple to employ with a word processing program.

Variable pitches: Changing pitch means you can alter the way the type looks. You can make the type condensed or with more space around the letters, depending on what is required.

Headers and footers: These are the explanatory lines at the top and bottom of pages. Again, they are often used in academic treatises, or in newsletters. The computer, formatted correctly, will automatically enter headers and footers on every page of the document.

Fonts: A font is a particular type style. Serif fonts have the little squiggly bits on the letters, and sans serif fonts are more modern characters without serifs. Some word processing programs will allow you to choose the font style.

With all these commands at your fingertips, you can do just about anything with your pages. You can produce a slick piece of finished copy, a professional letter, or a long, legible article. The permutations are endless.

WYSIWYG: What you see on the screen is what you get when you print out. ❑

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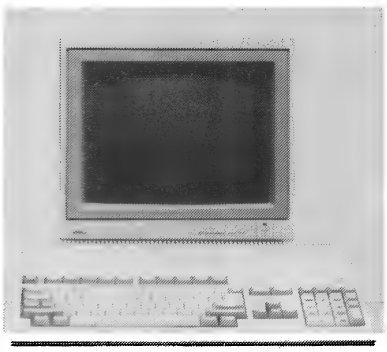
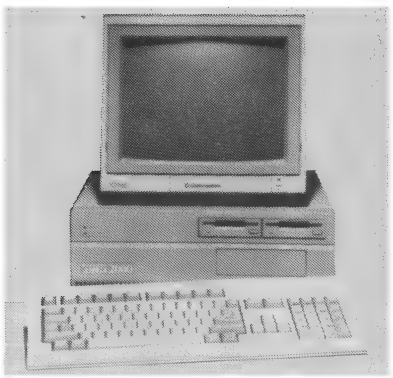


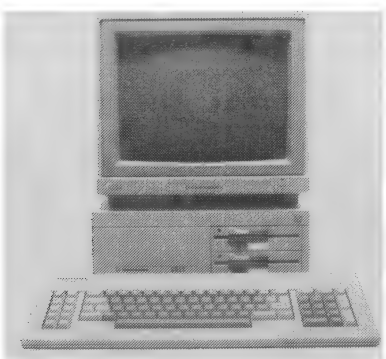
Commodore Amiga 500

With features such as multitasking and upgrading options, it's Australia's best selling small business computer.*



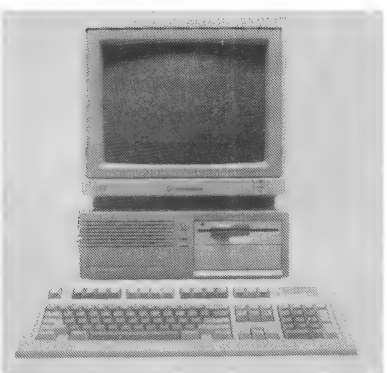
Commodore Amiga 2000

A true investment, because of its capability to expand, it offers multitasking to ensure versatility and increased productivity.



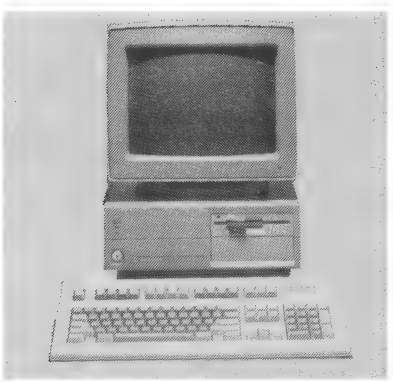
Commodore PC Colt

The quality PC-XT equivalent, ready to start work with colour or mono capability.



Commodore PC 10 III

The small footprint of this PC will save your desk space, it's also expandable – definitely a high performance XT.



Commodore PC 40 III

The high specification AT compatible, for the power user, delivers exceptional performance in a small footprint.

commodore

SMARTER

*Source: COMPASS RESEARCH Micro StoreBoard.

JSA COM0435

Caring for your Commodore

YOU'VE PAID DEARLY for your treasured home computer, here's how to keep it looking good and working well. With a little extra care, your Commodore 64 should give you many years of faithful service. We still have a few old C64s plugging away here at the office. Of the ones that haven't shorted out when one of our writers spilt coffee on the keyboard, they all work great.

There's a few basic areas to watch out for that will protect your computer and the information on it from damage. There's no need to be fanatical about these things, but it does help to keep a watchful eye on problem areas around your setup.

Static

● Have you ever walked through a building with synthetic carpet and a dry air conditioned atmosphere? Often you'll receive a nasty 'bite' as you reach for the door handle on the way out. Try the same thing in low lighting and you'll be amazed at how big a spark can be generated.

A similarly sized 'bite' can ruin disks of information, send your C64 into a state of no return, or just glitch memory enough to damage some of your work. Anything magnetic is a likely candidate!

Static electricity is caused by a surplus or deficit of electrons on a charged body. Problems occur when the body in question is yours.

Normally any static charge you build up is slowly dissipated into the atmosphere or lost to an earthed object upon contact. The dryer the air, the longer a static charge will remain upon you.

Solutions

● Ensure that you are at the same potential as your computer before you touch any part of it. Or simply put, that you're on mutual ground. For example, touch the metal cabinet of your video monitor or some other earthed object such as the kitchen sink. Avoid picking up the static charge in the first place.

Static electricity is generated when two different materials are rubbed together. Shoe soles on carpet, trousers across upholstery, plastic rubbed with silk are examples.

Instal your computer in an area with vinyl or wood flooring. Avoid carpet (particularly synthetic) like the plague. Carpet treatment chemicals are available for static reduction.

But seriously folks, on the whole C64s are pretty good when it comes to static. So unless you're in a particularly charged atmosphere, don't give it a second thought.

Dust

● The cleaner's nightmare. It gets on and into everything, keyboards included. Switch contacts don't like it. There isn't a lot you can do about this one other than cover your computer when it's not in use and keep it in a relatively dust free environment.

Covers are available from most computer retail outlets for popular home computers. If you're having trouble finding one to fit your brand, contact Computermate on (02) 457 8518.

Smoke is also in the danger category. A smoke particle is about one quarter the size of a typical dust particle. Of similar size is the fingerprint left when the magnetic surface is touched by human fingers.

A human hair, dust particle, or other foreign object can render a portion of a disk unreadable.

Other types of stray matter such as food should be kept well away from your keyboard. A few odd crumbs under key switches can render vital keys useless. Don't be afraid to vacuum your keyboard every so often to remove extra build-up from poor eating habits.

If all else fails, keyboards can be easily cleaned. Take your time dismantling them, there are a lot of screws. Wipe with a damp cloth, and spray PCB cleaner or anti-dust/static spray.

Disks

● As a general guide, do not expose floppy disks to the following: heat, magnetic fields, bending or other physical violence, dust, and greasy fingers. Avoid touching the bare surface with your fingers. Sneezing on the same area is a definite no-no. Never use them as a coffee mat, or frisbee!

Disks become less reliable with use. Some sources suggest 25 to 30 hours of actual rotation. Keep backups and relegate heavily used disks to non-vital jobs after they have shown you long and faithful service.

Disks do shrink and expand slightly with the rise and fall of the temperature. Don't use a disk that has recently been roasting in the hot sun. Allow it to cool down to room temperature first.

Heat with the disk drive may cause inconsistencies. Make sure it is well ventilated, with easy air flow around the cabinet. In some instances it may be necessary to install a fan. Dick Smith stores sell a unit which is well suited to the job.

If a disk becomes swamped in coffee or beer, don't panic! If the data is vital you may still be able to get it back. Remove the disk from its casing, and allow to dry naturally. Avoid touching the surface - hold by its edges.

When everything returns to normal, replace in a new cover, and give it a whirl. You may be surprised just how much you recover. Don't be impatient though - wait until it is thoroughly dry.

Heat

● Your computer consumes electricity. Due to the laws of thermodynamics, this electrical energy is turned into heat. Energy can't be destroyed or created. It may only be transformed from one form to another.

Some silicon chips produce more heat than others. The VIC-II chip and ROMS are the worst off - especially if you have memory expansion, extra cartridges or a printer interface. Constant heat and cold can cause chips to become unseated. Just give them a firm press until you hear them click into place. They're pretty robust, so don't be to afraid too give them a firm push.

Don't impede the air flow to the computer's already small ventilation holes. Always put the machine on a hard flat surface, never on a blanket or thick table

cloth that could reduce the air flow. Keep the computer away from sources of external heat - reading lamps, sunlight, radiators.

Avoid operation when the temperature is extreme - especially during summer. Use a fan to ensure a steady air flow over the machine and keep operation to as short a time as possible.

Now, if you think this sounds a little extreme, remember, it's your computer that's going to suffer heat stroke and most commercial installations are air conditioned.

Another problem can be humidity. Should the humidity levels reach 100 per cent, moisture will condense on any available surface at or below the temperature at which dew forms.

If this happens, corrosion can cause problems which often don't show up until it's too late.

The sorts of problems caused by condensation include unpredictable keyboards and intermittent failures caused by poor contacts in the multitude of metal to metal connections in the computer.

This problem is more significant in seaside areas due to airborne salt. The solution to this one? Avoid leaving your computer in a cold damp area. Make your computer room inside a warm dry house, avoid garages and other outbuildings.

I don't have to elaborate, but this is a terrific one for the computerist who is not well received by his better half in the lounge and looks destined for the chook shed. ❑

Commcare Centres

Approved Commodore repair centres

New South Wales

Micheal J. Brennan & Associates
216 Damaresq Street
Armidale NSW 2350
ph (067) 72 5776

Michael J. Brennan & Associates
783 Duri-Wallamore Road
Bithramere Via Tamworth NSW 2340
Ph (067) 67 4272

Central West Computer Care
Shop 5,
Brook Moore Centre
Bathurst NSW 2795
Ph (063) 322 555

Computer Tech Services
43 Planthurst Street
Carlton NSW 2218
Ph (02) 547 2333

Malcolm Graham Computer Repairs
14 Wharf Street
Tuncurry NSW 2428
Ph (065) 54 5935

Dadnj Electronics
17 Arnott Street
Newcastle West NSW 2302
Ph (049) 29 5197

Sibnet Pty. Ltd.
(rear) 13 Gibbs Street
Chatswood NSW 2067
Ph (02) 417 7600

P & W Croese
106 Aukland Street
Bega NSW 2550
Ph (064) 93 2123

Computer and Bits
Unit 10, Lot 40
Regentville Road
Penrith NSW 2750
Ph (047) 4553

Griffith Computer Repairs
69 Banna Lane
Griffith NSW 2680
Ph (069) 62 2318

AVC Electronics
23 Ellen Street
Wollongong NSW 2500
Ph (042) 28 6813

Victoria

Nucleus Computer Services
1st Floor, 202 Blackburn Road
Mount Waverley VIC 3149
Ph (03) 232 6733

Tate Palmer Technology
38B Scotsburn Avenue
Oakleigh South VIC 3167
Ph (03) 543 6060

Megatron Computer Industries
Unit 2, 64 _ 64 Charter Street
Ringwood VIC 3134
Ph (03) 870 4017 or (03) 870 4844

Northwest Electronics Pty Ltd.
Shop 4, 74 O'Shannassy Street
Sunbury VIC 3429
Ph (03) 744 4440

Queensland

Parcom (Brisbane)
Shop 10
White Hills Shopping Centre
Camp Hill QLD 4125
Ph (07) 395 2211
Parcom (Stafford)
1 Clifford Street
Stafford QLD 4053
Ph (07) 857 6311

Parcom (Southport)
The Local Shopping Centre
171 Nerang Street
Southport QLD 4215
Ph (075) 91 5821

PCB Electronics
Shop 6, 42 Balaclava Road
Earlville QLD 4870
Ph (070) 33 1217

SEQ Computer Repairs
Shop 4, 34 Brisbane Road
Bundamba QLD 4304
Ph (07) 816 1588

Technigraphic Services
643 Flinders Street
Townsville QLD 4304
Ph (077) 72 7270

Northern Territory

Computer Support & Maintenance
Suite 2, 96 Woods Street
Darwin NT 5790
Ph (089) 81 1338 or (089) 81 1397 or (089) 81 1499

Australian Capital Territory

Amalgamated Business Machines
65 Kembla Street
Fyshwick ACT 2609
Compuserve
3 Dundas Court
Phillip ACT 2606

South Australia

Force Electronics
5 Somerset Circuit
Lonsdale SA 5160
Ph (08) 326 0901

GCS Consulting Services
1068 South Road
Edwardstown SA 5039
Ph (08) 276 4600

Radcom
Unit 7, 100 Hewittson Road
Elizabeth West SA 5113
Ph (08) 287 1191

Western Australia

Computer Workshops
356 Murray Street
Perth WA 6000
Ph (09) 321 2678

Daves Oscitronics
1st Floor, Savings House
Hedland Place
Karratha WA 6714
Ph (091) 85 4836

Comfix Computer Maintenance
111 Cambridge Street
Leederville WA 6007
Ph (09) 388 1665

Tasmania

Advanced Electronics
127 Wellington Street
Launceston TAS 7250
Ph (003) 34 0066

Precision Solutions
295 Sandy Bay Road
Sandy Bay TAS 7005
Ph (002) 31 1633

User Groups

You'll find times and locations of meetings mentioned in the following list wherever possible. However, we suggest you confirm details before going, as they often change.

ACT

Canberra Amiga Users Society Inc
Jeff Wilson (062) 477 330
P.O. Box 596
Canberra City ACT 2601

Commodore User Group ACT Inc.
Ken Shands/Nikolaj Komanacki
(062) 923 087
Feb. to Dec. 1st & 3rd Monday
P.O. Box 489
Curtain ACT 2605

New South Wales

Ace User Group
P.O.Box 938
Bankstown N.S.W.2200

Albury/Wodonga User Grup
David Welles/Gerry Bloom
(060) 25 4757/(060) 21 5227
1st Monday each month Feb. to Dec.
558 Creyfern Court
Lavington NSW 2461

Armidale (N.S.W) Amiga User Groups
Barry Hopkins (076) 730250

Australian Amiga Users Association
Nigel Jones/Geoff Lambert
(02) 670 5166/(047) 53 6029
"Call" meeting fortnightly all over. P.O. Box 389
Penrith NSW 2750

Burwood Amiga User Group
Peter Anderson
(02) 6271596
2nd Monday of each month

Commodore Hornsby User Group Inc.
Frank Burton/David Pan
(02) 487 2062/(02) 489 1357
4th Wednesday each month
7.30pm
37 Blackburn Avenue
North Rocks NSW 2151

Compu-Tech Computer Club
Mark Beljaars/Ian McDonald
(049) 55 9023/(049) 49 7256
4th Tuesday each month 7pm
15 Haderon Grove
Gateshead NSW 2290

Cooma Amiga User Group
Randall Crook (064) 522493
3rd Wednesday of every month

East Coast Amiga Users Group
Jeff Campbell/Dick Bridge
(043) 418 140
2nd Friday each month
P.O. Box 86
Umina NSW 2257

Eastern Suburbs User Group (C64 and Amiga)
John Campbell/Jim Merchant
(02) 77 9666, 53 9729
Every 2nd Monday 7.30 pm
Penshurst Scout Hall
Conolly St, Penshurst 2222

Goulburn Amiga Owners Group
Rob Wilkins (048) 442251
1st Wednesday of the month

RAAF Richmond Computer Club Not open to the public

SYDCOM User Group
Ian Langton (02) 819 7189
2nd Friday each month except Jan.
P.O. Box 1542
Sydney NSW 2001

Tuggerah Lakes User Group
Barry Atkinson/Bill Martin
(043) 282 805/(043) 922 567
Old Wyong Primary School
P.O. Box 2257
Gosford NSW 2250

Wollongong C64/128 User Group
Peter Stanhope/Keith Brooks
(042) 28 8580/(042) 29 3669
2nd Friday each month
155 Jacaranda Avenue
Figtree NSW 2525

Northern Territory

Amiga Users Of Northern Territory
Terry Wright/Don Pedersen
(089) 32 1884/(089) 27 9955
2nd Wednesday each month
7.30pm
13 Mollascooma Drive
Moulden NT 0830

Queensland

Amiga User Group Rockhampton
John Olsen
(079) 344228 (AH)

Brisbane Amiga Users Group
Chris Taylor (07) 376 6590
1st Sunday each month except Jan.
4 Grasmere Street
Westlake QLD 4074

Bundaberg Commodore User Group
1st Sunday each month
P.O. Box 1598
Bundaberg QLD 4676

Commodore Computer Users Group Inc.
Mike Williams/Ralph De Vries
(07) 209 9084
1st Tuesday each month 7pm
P.O.Box 274
Springwood QLD 4127

Commodore User Group
David Siebuhr/Terry Kahler
(076) 93 1739
2nd Saturday each month
P.O. Box 166
Pittsworth QLD 4356

Commodore User Group Mackay
Paul Hall/Trevor Klapmoth
(079) 51 2222/(079) 52 3322
Every 2nd Wednesday
7.30pm
Box 422 Mackay QLD 4740

Gladstone Amiga User Group
Scott Hamilton
P.O.Box 139
Gladstone QLD 4680

Ipswich Commodore Computer U.G.
Bob Linskett/Phil Bishop
(07) 202 2786
Each Tuesday night except 3rd Tues.
P.O. Box 252
Ipswich QLD 4305

Mermaid (Business) Users Group(s)
Ron Perry
Every Thurs. 7.15
22 Maureen Court
Broadbeach Waters 4218

Micro Users Club
(075) 574 501/(075) 988 684
Every Thursday/Broadbeach St. Schl

Northern Amiga User Group
Make Katona/Garry Marsh
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2nd Tues each month 2.30pm

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Adam Horn
WK; 817541 HM; 79489
2nd Wednesday of each month
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Aitkenvale QLD 4814

South Australia

Amiga Users Group Of SA
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Glenside SA 5064

Barossa Users Group
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Box RSD Daverson
via Creenock SA 5360

SA Commodore User Group
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North Adelaide SA 5006

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J. Groffen (President)
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(002) 49 3259/(002) 72 8610
3rd Wednesday
8 Asquith Court
Claremont Tas 7011

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P.O. Box 168
Launcestion Tas 7250

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Shepparton VIC3630

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Cloverdale WA 6105

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Willetton WA 6155

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Gwelup WA 6021

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Forresfield 6058

Kalamiga User Group
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South Hedland WA 6722

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Morley WA 6062

VicChips Computer User Group (Inc)
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Every Tues., Malibu School
P.O. Box 540
Rockingham 6168

Waite Amiga Users
C\o Curtin University
14 Colonial Drive
Bibra Lake WA 6163

New Zealand

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2nd Wednesday each month
7.30pm
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Christchurch NZ

Bay Amiga Club
Jonathan Clarke
070 358715
P.O.Box 959
Hastings New Zealand

Christchurch User Group
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P.O. Box 4665
Christchurch NZ 6

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Sunnynook, Auckland NZ10

NZ Microcomputer Club
Peter Taylor
(649) 527 6618
3rd Wednesday each month

Let's play games

An introduction to computer games

by Phil Campbell

Games, games, games. When you've got a Commodore 64, games make the world go round.

YOU MAY NOT LIKE to admit it. After all, you can use a Commodore 64 for a lot of very serious reasons. For wordprocessing. For working out the family budget. For educating the kids. Those are all good reasons - but they're mainly excuses. I'm convinced that the real reason people buy computers is so they can play games. Watch them next time you're in a computer shop - the yuppie dads buying computers "for their kids." They come in wearing their business suits. They try to look serious. But all the time, they are casting furtive glances at the games.

Well, guys and gals, mums and dads - now is the time to come out of the closet. Now is the time to stand tall. Admit it. Computer games are great.

And you love 'em. If you've got a Commodore 64, you've got the most impressive selection of games in the world to choose from. Nothing can compete with the range of games available for what is still the most popular home computer on the planet. So make the most of it!

Besides, computer games are useful. First, they're relaxing. Unwind, take that load off your mind, and blast a few thousand aliens. Excellent therapy, and cheaper than seeing a shrink.

Secondly, games are the best way to introduce people to computers. Computer games make kids curious. Curious about how the computer actually works. Have a look at our selection of hints and tips. Some of these involve actually modifying game programs with the basic POKE command - a great start if you've got an inquisitive mind. "How does it work" is the age old question. Start with a few POKEs here and there, and next thing you know you'll be writing your own programs.

The supply of new games for the Commodore 64 has slowed down a little in the last year. Software houses have decided that the Amiga is the way to go - strangely, they are also pouring money into developing games for the boring old IBM. Sometimes I think the quality of new games is dropping a little too - even when a game is released in multiple formats, the C-64 version is often cobbled together as an after-thought.

On a brighter note, the year gone by has seen some excellent entertainment software. It seems to me that the C-64 still has the best range of high speed shoot-'em-ups. Often Amiga games look pretty, but they don't play nearly as well as their C-64 counterparts. Turn the page and you'll find Luke Lynde's detailed rundown of seven of his all time favourites. You'll also find a comparison of three of the best game controllers - they say a bad workman always blames his tools, but the fact remains that a good joystick will make a lot of difference to your personal high score chart.

There's plenty more happening, so sit back and relax - browse through the next few pages for an introduction to the world of entertainment. After all, we all like games. Even if you don't like to admit it. ❑

Poke-ing Fun

● A PILE OF HANDY hints and tips to get you through your favourite games. Ever get frustrated when you can't make it past the first stage of that game you spent your life savings on? It doesn't seem fair, does it. After all, there are fifteen more stages to explore, with bigger, brighter and better alien landscapes and enemy spaceships. Suffer no more. Here's a selection of our best hints and tips, little tricks that will make you look like an expert at even the hardest games.

How do they work? Well, some rely on secret passwords left in the program by the authors - they are used during the development of the game to let the programmers check all the features without having to worry about getting blasted out of the sky. Others let you modify the program by directly changing various memory locations with the POKE command. Sometimes you can disable Sprite Collision Detection. Or maybe change the memory location that tells the program how many "lives" you've got. Or perhaps you might like to increase the game time by extending the value in the memory address that sets the timer.

You'll notice that hints like these ask you to RESET the computer. Obviously, you can't use the POKE command built into your computer while a game is running. First, you have to load the game into the memory of your computer. Then you have to stop it so you can fiddle around with its program code. But how? You can press the STOP and RESTORE keys as long as you like, but nothing will happen.

What you need is a special RESET BUTTON - there are a number of different types available, some built into fancy cartridges, others that simply plug in to your serial port. Try your local computer shop, or look through your back issues of *Australian Commodore and Amiga Review* for information on how to build one. It's-

really very simple.

I shouldn't tell you this, but you can also reset your computer by shorting together pins 2 and 6 of your serial cable with a paper clip or other suitable device. DON'T BLAME ME if you try this and blow up half the chips in your computer! My system has survived OK, and I've been doing it for years - others have not been quite so lucky. When you reset the computer - a "cold start" - you will be presented with the standard startup screen, as if you have just switched on. But never fear - your game program is still tucked away safely in memory, all ready to be modified by your POKE commands and restarted with "SYS".

That's it folks. So go for it. POKE to your heart's content, and then go exploring those impossible levels that have never before been seen by human eyes. ❑

Ace II

- Enter DUSTY BUG on the high score table to become indestructable.

Beyond The Ice Palace

- Reset the computer, then POKE 5918, 173 Return] for infinite lives
- POKE 17820, 173 Return] to disable sprite collision Restart with SYS 2062

Bombjack

- For an invincible Jack, reset then POKE 5112,0 - restart with SYS 3101.

Brainstorm

- POKE 18281,173 then SYS 16384 for infinite lives.

Chubby Gristle

- POKE 3613,173 then SYS 2994 for infinite lives.

Gauntlet

- POKE 49004, 96 then SYS 32768 to restart with infinite lives.

Ghostbusters

- When you are asked for your name, type OWEN. For your account, type LIST. This will give you plenty of spending money.

Giana Sisters

- Hold down the A R M and N keys to advance a level.

Hoppin Mad

- POKE 24447, 165 for infinite lives
- POKE 22797, 165 for infinite time
- SYS 20480 to restart

IO

- First, load the program and reset the computer. Then;
- POKE 25117, 173 for infinite lives
- POKE 24969 with a number between 0 and 3 to set the starting level
- POKE 27026, 0: POKE 27027, 173 to make your ship invincible
- POKE 25080, 173 lets you keep the firepower you've earned, even if your ship gets destroyed.
- To restart the game, type SYS 24576 followed by RETURN.

Kung-fu Master

- Load the game, then reset. Enter POKE 34142, 128 followed by RETURN, then type SYS 32768 to restart the game. You now have endless lives.

Lazy Jones

- Reset after loading, then enter POKE 4063, 173 followed by SYS 2061 to restart with infinite lives.

Monty On The Run

- The password sequence for this game is as follows - ROPE-JETPACK-PASSPORT-GASMASK AND THE BOTTLE OF RUM

Mutants

- Reset, then POKE 9273,230 for infinite lives SYS 4096 to restart

Nemesis

- Press shift-lock and then the space bar 4 times to activate cheat mode.

Netherworld

- You'll need the *Replay Cartridge* to use restart this one -
- POKE 12116, 44 for infinite lives
- POKE 8138, 0 for unlimited energy

Otherwise, try pressing 2, 4 and E all at once to enter the next pattern.

Operation Wolf

- Do all the usual stuff, then POKE 33351, 165 for infinite energy. Restart with SYS 16963.

Outrun

- POKE 44049, 96 to stop all collisions
- POKE 34686, 173 for infinite time
- SYS 38045 to restart

Pacmania

- Load and reset, then POKE 28520, 165 for infinite lives. SYS 14336 to resume.

R-type

- When fighting the first guardian, if it approaches with its TAIL DOWN, hold down the fire button and it will pass right through you!

Or if you prefer to make some changes ...

- POKE 12865,173 then POKE 12957,173 for infinite lives
- POKE 12700,96 to disable sprite collisions
- SYS 32768 to restart

Rygar

- Load the game, press reset, then enter the following -
- POKE 9551,165: POKE 4050,77: POKE 4055,77
- Press RETURN, then restart the game by typing SYS 2325. You now have unlimited lives.

Scooby Doo

- POKE 7459,96 then SYS 2560 for infinite lives.

Space Harrier

- POKE 5884, 96 for infinite times
- POKE 6010, 173 for infinite lives
- POKE 14212,234 for the fastest 3-D ever
- POKE 14631,127 to slow it down
- SYS 2128 to restart

Thing Bounces Back

- On the title screen, type Y J O M H for infinite lives.

Thunder Blade

- Load and reset, then POKE 4159 with a value between 3 and 255 for the number of lives you want - eg. POKE 4159, 100 will give you 100 lives. Then SYS 4096 to restart the game.

Tiger Road

- For infinite Ninjas POKE 5749, 165, then SYS 14848 to restart.

To Hell and Back

- POKE 32371,173 then SYS 30464 for infinite lives.

Traz

● Reset, then POKE 42200, 173 and SYS 327687 - you will now have infinite balls.

Vindicator

● Load and Reset, then POKE 34644 with the number of lives you'd like - anything between 3 and 128. Sys 34480 to restart the game.

Thanks to the following contributors who provided the hints and tips used in this section:-

Paul Millward, from Salisbury North, S.A.

Nick Van Heeswyck, of Mount Gambier, S.A.

Tim J. Lockwood, of Corio, Victoria

Tony Sharpe, of Cessnock, NSW

Chris Byrne, of Mt Isa, Qld

M. Scanlan, of Gilmore, ACT

Andrew Tremewheere, of Mayfield West, NSW

Nicholas Prokop, of Berkeley Vale, NSW

Chart Toppers

Ozisoft top ten

1 Batman The Movie
2 Operation Wolf
3 After Burner
4 Robocop
5 Test Drive
6 Thunderblade
7 Batman - Caped Crusader
8 World Class Leader Board
9 R-type
10 Dragon Ninja

Questor top five

1 Rick Dangerous
2 Red Storm Rising
3 Star Wars Trilogy
4 Gun Ship
5 Stunt Car Racer

Mindscape top ten

1 Double Dragon II
2 Shinobi
3 Basketball
4 Ballistix
5 Silkworm
6 Navy Moves
7 Jaws
8 Chessmaster 2100
9 Continental Circus
10 Aussie Games

Dataflow top ten

1. Where in the World is Carmen Sandiego?
2. Lode Runner
3. Karateka
4. Times of Lore
5. Ultima Trilogy
6. Sim City
7. Superbike Challenge
8. Ultima V
9. Where in the USA is Carmen Sandiego?
10. Where in Europe is Carmen Sandiego?

Pactronics Top Ten

1. Flippit
2. Eliminator
3. Stormlord
4. Graham Gooch's Test Cricket
5. Adult Poker
6. Combat Zone
7. Snapdragon
8. Impact
9. Time & Magik
10. Sports Spectacular

Tops from ECP

1. Hillsfar
2. Pools of Radiance
3. Heroes of the Lance
4. Cave Ugh-Lympics
5. Jordon vs Bird!: One on One
6. Mars Saga
7. Chain Reaction
8. Chaos

Michael Spiteri's Top Adventure Games

1. Corruption
2. Fish
3. Balance of Power-1990 Edition
4. Times of Lore
5. Red Storm Rising
6. Wanderer 3D

Drowning in a sea of games? There are so many to choose from, especially when it comes to the ever popular shoot-'em-up. Here's help - Luke Lynde sorts out seven of the best in our ...

Ultimate "Shoot-em-up" Guide

● Blasting aliens is a lot of fun. You can do it in all sorts of directions. Left to right. Horizontally. Vertically. It doesn't matter, just so long as the action is fast and furious and there are plenty of bad guys to blow to bits.

Around a decade ago, a game called *Space Invaders* hit the arcades and caused quite a stir. It was soon a house-hold name. This game was the first shoot-em-up ever to appear, and now there are virtually thousands. *Space Invaders* has gone from 'State of the Art' to 'Prehistoric', because nowadays it's just too repetitive and boring.

An essential ingredient for a shoot-'em-up is a change of scenery for each new level or section, and this is what *Space Invaders* sadly lacked. Also as a must for any shoot-'em-up is good playability (meaning - feel, control, speed and level of difficulty). Mind you, *Space Invaders* had plenty of this - that's why so many kids used up all their pocket money in the game arcades.

Graphics and sound also play a key role, but a game with virtually no playability would be disastrous. *Dropzone* (reviewed below) is truly a classic game because of its playability. Graphics and sound are merely average but they don't affect its addictiveness at all!

There are also many absolutely shocking shoot-'em-ups around; one example is the unforgettable game *Side Arms*. Avoid it if you see it! I've reviewed seven

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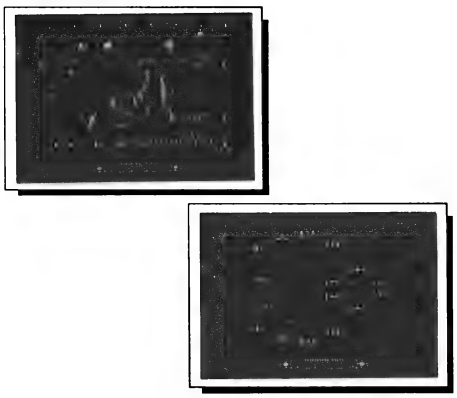


Armalyte

shoot-'em-ups in this guide, all detailed and explained with a rating out of 100% for each. All of these are of strikingly high quality and should be purchased when seen.

Let's get on with the games...

Armalyte 96%

● *Armalyte*, from English software house Thalamus, has two predecessors - *Sanxion* and *Delta*. Neither are quite as good as *Armalyte*, but that's not saying that they're bad. On the contrary, they're definitely worth getting your hands on if you see them. *Armalyte* is a mixture of the above two games, and is purely excellent.

It is set in a high tech space craft with your mission being to make your way through the eight lengthy Horizontal Scrolling levels of Hsiffian defences. These Hsiffian defences comprise hostile aliens and enemy crafts of all shapes and sizes, all of which are out for your early departure. They obviously also must be all killed in order to reach the next level.

Each level ends with Giant Aliens which must be shot quite a few times to be killed, proving quite a challenge and a sense of achievement when they have finally been destroyed. Extra weaponry is gained by shooting crystal (which are scattered all around the landscapes) and then picking them up.

Some crystals give you limited invulnerability and some give you side mounted lasers - the weaponry is better the more shots the crystals have undergone.

Armalyte has been given nicknames like 'Delta 2', and even 'Sanxion 3' - they are well deserved! Unbelievable graphics (noticeable in all Thalamus software), sound, playability, and stunning end of level aliens make *Armalyte* one of the best shoot-'em-ups ever to appear. An essential purchase for such high quality.

Hawkeye 97%

● Another classic shoot-'em-up from the people at Thalamus, not at all like *Armalyte*, but still one heck of a game. Keep it up, Thalamus, you could easily end up being the best software house around. Now it's on with the review...

Planet Xamox had finally reached perfection on their planet when they were suddenly destroyed by a tribe of Milky Way Nomads called the 'Skryksis'.

The Skryksis began building radiation plants on the Xamox surface, forcing the few survivors of the once flourishing Xamox people underground. The atmosphere above was poisoned, thus making the planet impossible to live on.

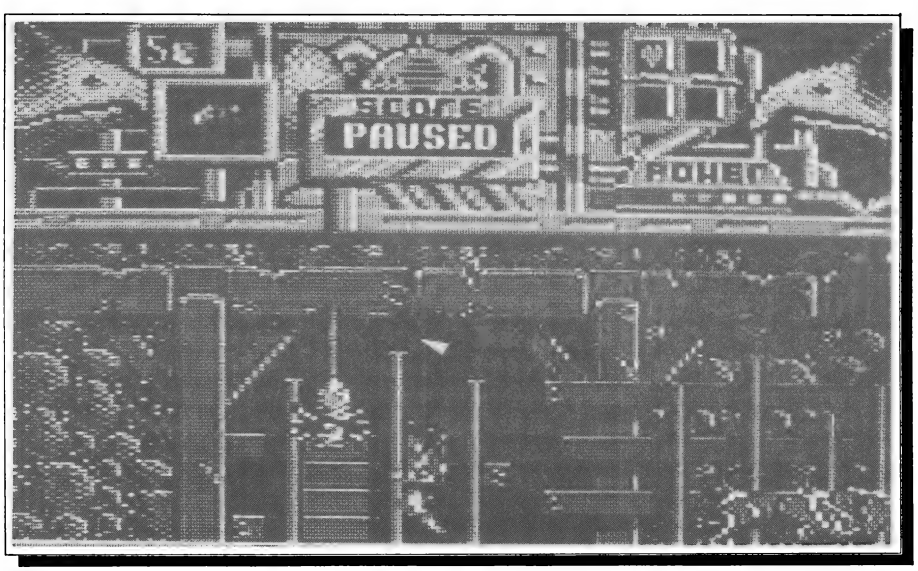
The angry survivors quickly made a half robot and half human called the SLF (Synthetic Life Form). You take control of this SLF and must traverse numerous bi-directional horizontally scrolling levels, shooting all the hideous creatures lurking about, in order to shut down the Radiation Plants.

To pass through each of the 12 levels, you must collect four 'Puzzle Pieces' in the shape of icons and then make your way to the end of the level where bonus points will be added to your current score. You will also then be recharged ready to go on to the next level.

Other icons can be collected other than the Puzzle Pieces, and can replenish lost energy and top up your ammunition supply. You have a total of four weapons ranging from the pistol to the pulse laser, but these are in limited supply, so shoot carefully.

Radiation Plants will be shut down and the planet Xamox will be returned to its former glory. "Yay! What a hero! Perhaps you can do it again for us the next time we're in trouble," they say. "Only with a copy of *Hawkeye* handy," you reply and then there is deep silence as this review comes to an end.

Wha'ts so good about this game is the neat control of the SLF, with the superlative graphics and sound enhancing the already absorbing gameplay. Nuff said.



Hawkeye

Dropzone 97%

● From ace programmer Archer Maclean (maker of *International Karate* also!) comes a classic shoot-'em-up named *Dropzone*. *Dropzone* is a bi-directional horizontally scrolling game in the vein of the old arcade classic called *Defender* (anyone remember that?!). With a jetpack on your back and a rapid fire laser, you are set off to patrol the skies of the Jovian Moon, Io (no relation to the game of the same name.)

There you are on the lookout for stranded scientists who must be picked up and placed on a 'Dropzone', found in the middle area of Io. When all of the scientists are collected and safely placed on the Dropzone, it's on to a new and even harder level ... it's not as easy as it sounds as there are lots of aliens on each level set out to destroy both you and the scientists that you are trying to collect.

These aliens can be killed with your laser or smartly avoided by using the spe-

cial 'Cloaking' feature where no sprite collision is detected. This feature only lasts for a limited time though, and should only really be used when in desperate trouble.

If all the scientists are captured and destroyed before you have a chance to collect them, lava spurts up from the Moon's many volcanoes and frantic blasting becomes the order of the day, very hard indeed when that happens. Control of your Man in this game is truly superb, and this game shows you that without really good graphics and sound you can still have an immensely playable and addictive game. The more this game ages, the better it gets!.

Cybernoid II 92%

● The sequel to *Cybernoid*. *Cybernoid* is nearly as good and if possible, you should try getting both of them. They're recommended games for any shooter's collection! Now, about *Cybernoid* 2...

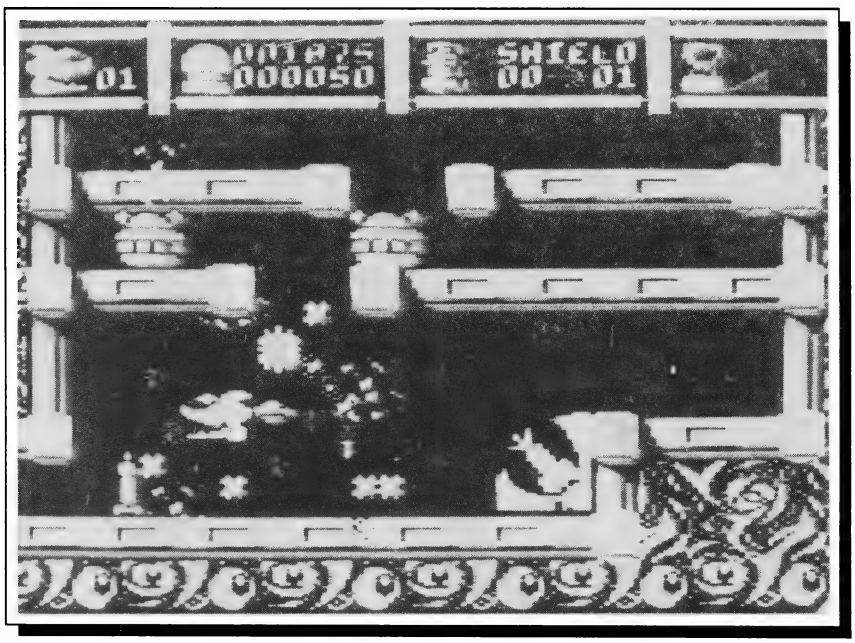
Pirates have been causing chaos around the planet and all of this must be stopped once and for all. The Federation have asked you, Mr Mega Hard Man, to stop these pirate thugs before devastation occurs. This is done by flying your space craft around the four flick-screen style levels and shooting absolutely everything that gets in your way.

This is not at all simple (is it ever?) because you have to use the various weapons at your disposal at the right time and place, in order to tackle the screen that you are on correctly. Cargo must also be collected (which falls off blasted pirate craft and is sometimes scattered around) to the value of 1500 points in order to go onto the next new level.

The best thing about this shoot-'em-up is that it also involves a bit of lateral thinking and some frantic blasting. The graphics are extremely well-defined and movement is great. A neat tune blasts throughout and heightens the atmosphere even more. What more could you ask for?!

Parallax 90%

● Ocean have been busy making some great film tie-ins, namely *Robocop* and *Batman*, but two and a half years ago they made a shoot-'em-up called *Parallax*. That's quite a while ago, but *Parallax* hasn't mellowed with age and still impresses as much as it did then. *Parallax* is over two years old and is better than about 65% of the games released today.



Cybernoid II

Enough of this, let's talk about the game. *Parallax* places you in a craft called the 'IBIS' where the objective of the game is to find a total of five passwords and rescue your friends. This is done by flying around the all-directional scrolling levels, landing on special Landing Pads which are scattered around the landscapes, and drugging Scientists. "Drugging scientists?" you think. How is it done? Well ...

After you land on a Landing Pad, you can walk about the surface and into special rooms (known as Hangars) where you may find a scientist. Make sure you select enough oxygen before you leave the ship. You can get handy info out of scientists when you drug them with your special home-brand narcotics.

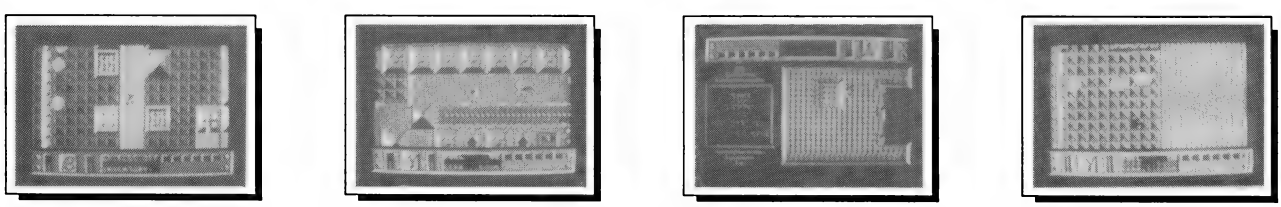
When you have the password, you must go to the level's Central Computer (yet another type of Hangar) and if the password you entered is correct, then it's on to the next level.

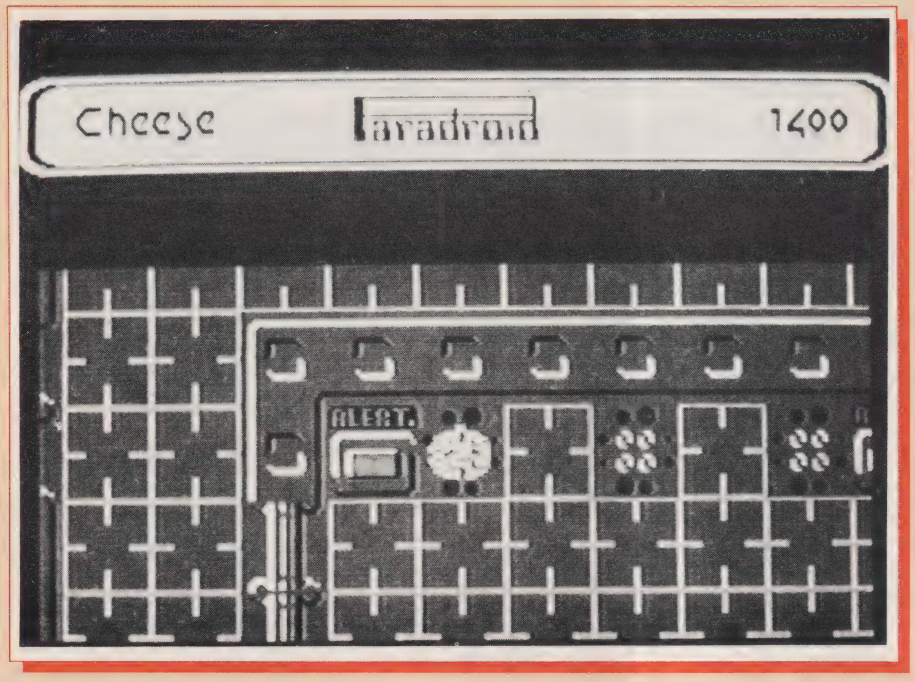
After getting through the five levels you will have rescued your five astronaut chums and sucessfully completed your mission. This game is a special blend of strategy and action and is adorned with great graphics, surreal sound and really good scrolling. You could get a lot worse a game than this, so buy it!!

Paradroid 98%

● Before I tell you about this excellent game, I must give high praise to the programmer Andrew Braybrook for such an excellent job. Andrew programmed this game in a mere four months (May to August 1985) and it is without doubt the most superlative shoot-'em-up ever. Andrew has produced other high class games such as *Uridium*, *Morpheus* and the more recent *Intensity*. All of which are very good - but not as good as this. Read on and see why.

A group of ships are on their way to the Beta Ceti System when all of a sudden disaster strikes. The group of ships ran into a field of asteroids killing all of the


Parallax



Paradroid

human inhabitants on board and scrambling all of the robot droids' circuitry, rendering them hyperactive and dangerous. And to make things worse, all three ships are heading for Enemy Space, and if in enemy hands, could destroy life on earth as we know it.

A prototype droid known as the 'Influence Device' has been beamed aboard the first ship called the *Paradroid*, and the droid's objective (your objective!) is to clear the eight Robo Freighter ships of all menacing droids.

All the ships have many Deck Levels. Some can be freely entered, others are a little more tricky. There are three ways to kill the other Droids. You can shoot them with your current Droid's built in laser armament, bump them off, or transfer into them.

Shooting them is a sensible way to go and bumping into them is a no-no because it can cause severe damage to your droid and you may even die.

Transferring into them is definitely the way to go, done by centring the Joystick, pressing the Fire Button and attaching yourself onto another droid. This puts you into 'Transfer Mode' and when you touch the other droid, you enter what is called a 'Transfer Game'. In the Transfer Game, there are 12 wires on each side of the screen (your droids and the droid that you plan to take over) comprising of the colours Yellow and Purple. You then must pick a colour and with your joystick you must position pulses to be sent through the blocks of your opponent's colour.

You win if you can set seven of the 12 blocks to your own colour. If the bout is tied, a 'Deadlock' occurs and if you lose, you will be 'Burnt Out' and the game will end. If the Transfer Game is won by your droid, you are transferred from your current droid (the 001 on your first go) to the droid that you won the bout over. The droids in the game range from the 001 to the 999, there are 24 types.

After a long four years, I feel that no shoot-'em-up has bettered this. It's definitely the best shoot-'em-up around, no questions asked. Get it or regret it.

Wizball

Paradroid

Wizball 89%

● Another masterpiece from Ocean, and here's how it goes ... Wizworld was once a beautiful planet, but the Evil Zark drained out all the colours 'til they were non-existent. As a wizard you must bring back the colour to the once luminescent Wizworld by collecting certain Paint Drops and mixing them together into the landscape's three target colours.

You, the Spherical Bouncing Wizard, are in a bi directional horizontally scrolling world and travelling around Wizworld is done by bouncing yourself around and falling into vertical tunnels. Evil Zark's friends are out to get you too, so precise firing and control is an absolute essential! Icons can also be collected from Dead Aliens and add on various features to your Wizball.

There are eight exciting levels and all prove quite addictive and enthralling. There is great scrolling in this game and a very weird title tune. All of which makes this great game even better!

Conclusion:

● That's it, folks - my summary of the best Commodore 64 shoot-'em-ups of all time. Most titles are available through your local K-Mart, though keep an eye out in your local computer store. Some of the older titles may even be on special.

Armalyte can be obtained by writing to Thalamus at the following address: Thalamus, 1 Saturn House, Calleva Park, Aldermaston, Berkshire RG7 4QW. ❑

The joy of a good stick

Sick of the sound of breaking plastic? Tired of those flimsy joysticks that are "here today and gone tomorrow"? Phil Campbell reviews some top quality joysticks that are guaranteed to "stick around" ...

MY FIRST JOYSTICK died after just two weeks. It was obviously designed to self-destruct. With a flimsy plastic stick and paper-thin metallic switches, the only question was which would give way first.

The designer obviously did not realise that saving the world from *Space Invaders* can be quite an athletic business. In heated moments the humble game controller can suffer quite a battering.

Epyx 500 XJ

● At last, manufacturers are coming to grips with the problem. The new breed of sticks have set a high standard of durability, often backed by impressive warranties. The EPYX 500XJ, priced at $39.95, has a five year, 10 million shot guarantee.

This model, distributed by Questor (ph 02 697 8666), takes a unique design approach. "Ergonomic" may well be the most over-used adjective of the decade, but this stick certainly earns the label.

Shaped to fit neatly into the palm of an average sized hand, the unit is quite comfortable to hold. The fire button is set into the curved side of the casing, fitting neatly under your trigger finger. Other contours are provided in exactly the right place for the average thumb and the average middle finger - any extra digits should wind gracefully round the narrower stock of the casing. If you are average.

Your other hand is now free to control the movement of the stick, in this case a four centimetre steel shaft encased in moulded plastic. The compact size of the mechanism ensures a "shorter, faster and more precise throw, and a better feel."

Cruiser

● The Cruiser is another high quality contender in the computer "gear-stick" stakes. My test unit was supplied by the Computer Spot in Burwood (ph 02 744-8809), and retails for $49.95. The name is corny, the blue and red colour scheme is tasteless, and the styling can only be called "60s kitsch". On the box, the Cruiser is photographed floating above a mysterious planet - with strong hints of a scene from the "Thunderbirds". Fortunately, it performs better than it looks.

Adopting a different design philosophy to the hand held Epyx unit, the Cruiser has four high powered suction pads on its undercarriage. These plant the stick firmly on any smooth surface in front of your computer, and give a stable base for your alien blitzkreig.

The unit also features a "Variable Tension Control Ring" - a collar around the shaft which adjusts the degree of movement required to activate the internal mechanism.

Both joysticks use micro-switches, giving precise control and a satisfying "click" on each activation. In play, however, they have remarkably different characteristics.

I tested both models in battle conditions. Playing *Insanity Fight*, a high-powered and fast moving space shoot-out, my average score with the Epyx 500XJ was 12,260 points. With the Cruiser, I scored an average 24,325 - a dramatic 98.4% increase. In a game like this, the fire-button is the most important control of all - and the Cruiser can pump out almost twice as many shots per minute as the Epyx. The button on the Cruiser is delightfully responsive.

On games that required fine directional control with the joystick, the reverse was true. Playing *Tetris*, for example - a game where you have to neatly stack falling shapes - the Epyx came out on top. Movements were precise and accurate - a liability if you panic, but a great asset otherwise.

Both the Epyx and the Cruiser are impressive joysticks - they will probably last considerably more than two weeks. On the other hand, with switches guaranteed for 10 million activations and a firing rate of 500 shots per minute, you could find your joystick worn out after only 13.9 days of continuous play. But addiction like that is a serious problem.

Challenger remote control

● The Challenger remote control joystick features an infra red remote control link. Now you can fight off the alien hordes while you sit back in an arm chair, while you stroll around the room, or even while you eat dinner - in fact, providing you can still see what's happening on the screen, you can control your games from anywhere in a five metre radius.

This is a great idea. After all, we've been controlling our Video Recorders and TV sets this way for years. Remember when you used to trip over those endless, tangled remote control leads that snaked across the loungeroom floor? Those days have long gone - and good riddance.

The Challenger comes in two parts - a small, mouse-shaped receiver unit that plugs into the normal joystick port of my Amiga, and a fairly ordinary looking main joystick. The receiver sits on top of my monitor, with a flashing red light emitting diode on the top, and a black plastic infra-red filter on the front.

The joystick has a similar black filter set into the front of its base. Naturally enough, if your hand slips over it, the game you are playing will come to a premature end. In practice, this is rarely a problem.

The handle of the joystick is comfortable to hold, and there are two fire buttons - one located under the thumb, the other under the index finger.

The unit is solidly constructed, with a solid plastic casing, six positive click-action switches and a nice overall feel. Three small batteries fit into the bottom of the unit.

The Challenger works extremely well. Control is instant and direct - in fact, there is nothing unusual about the joystick performance at all. I clocked my usual scores on most games, though I suspect that the auto-fire option is a little slower than on my usual stick. Who cares? Now that I'm free from the tangle of cables around my computer, nothing else matters.

Distributed in Australia by H&R Wholesale Pty Ltd (ph 02 897 1044), the Challenger remote control joystick has a recommended retail price of $59.95, only a fraction more expensive than a standard stick. A small price to pay for freedom. ❑

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BRI Briwall Australia, PO Box 9,
Rivett, ACT 2611. (062) 880131
CMT Computermate Products Pty Ltd, 9 High St,
Mt Kuring-Gai, NSW 2080. (02) 457 8118
DFL Dataflow Pty Ltd, Level 5, 134 Barcom Ave,
Rushcutters Bay, NSW 2011. (03) 331 6153.
ECP Entertainment & Computer Products Pty Ltd, Unit 4, 18 Lawrence Drive,
Nerang, Qld 4211. (075) 96 3488.
OZI Ozi Soft Pty Ltd, Locked Mail Bag No 7,
Rosebery NSW 2081, (02) 313 6444
MSP Mindscape International, 5-6 Gladstone Rd,
Castle Hill, NSW 2154. (02) 899 2277.
PAC Pactronics Pty Ltd, 98 Carnarvon St,
Silverwater, NSW 2141. (02) 748 4700.
QUE Questor Pty Ltd, Mailbag 9,
Rosebery, NSW 2018. (02) 662 7944.

Basic sorting data

by David Williams

Every programmer of any type of computer will eventually have to sort some sort of list, whether addresses, or high-scores. There are many types of sorting routines. This article will cover several types: push-down, ripple, and Shell sorts, and also chaining.

● **Push-down sorting** is where the data is automatically ordered, while being entered. This means that a value is entered, and the computer quickly searches through the list, making comparisons to find where the new value belongs. When its place is found, the data after it in the list is pushed-down (hence the name) so as to accommodate it.

```
10 dim a(100):e=.
20 input"data";d:if d=-1then 90
30 if e>.then 50
40 e=e+1:a(e)=d:goto 20
50 for i=1to e:if a(i)>dthen 70
60 next:goto 40
70 for j=eto istep -1:a(j+1)=a(j):next
80 e(i)=d:e=e+1:goto 20
90 for i=1to e:print a(i):next
```

This example first defines an array of 101 elements (as the first element is number zero, however we do not use it, and so only 100 are relevent.) and sets the variable e to zero. This shall hold the number of data elements. In line 20, the user is asked to enter some data. If -1 is entered, the program will print the list and end. Otherwise, in line 30 a test is made to see if this is the first entry. If so, e is incremented, and the data put in the list, and line 20 is jumped to.

If not, a search is made from the beginning of the list to find where the data belongs, and then in line 70 all the elements in the list after this position are pushed down. The data is put in its place, e is incremented, and line 20 is gone to.

The problem with this is that it slows the computer down quite noticably after many elements have been entered.

● **The ripple-sort** is probably the best known, and is also known as a bubble sort. This works by comparing consecutive elements, and swapping them is necessary. Thus after one sweep through the list, the last element is in the right place, but all the others are probably not. The sweep is then made again, but one less comparison needs to be made, for the above reason. This is then repeated until one comparison is made. This routine is adequate for short lists, but is far too slow for massive ones. One reason for this is the number of comparisons made. This can be calculated by the formula:

Length of list * length of list -1 / 2

So for a list of 100 elements, 100*99/2 comparisons need to be made, which is 4950. A way to shorten this is to insert a variable that adds the number of comparisons made in a sweep. If this comes to be zero, then the list must be in order, and so the routine can end.

● **The Shell sort** (named after Donald Shell) is a much quicker alternative. This uses a gap, which is initialised to half the items in the list.

For instance in a list of 100 elements, the gap is set to 50. Now, instead of comparing neighbouring elements, comparisons are made between elements that are seperated by this gap. For example, if we had the array a(x) with 100 elements, a (1) would be compared with a(51), a(2) with a(52) and so on. When no more swaps can be made, the gap is halved, and rounded down, so it goes 50, 25, 12, 6, 3, 1. In the ripple sort a value is moved down the list one place at a time. In the Shell sort it is moved 50 places after the first comparison.

Doubling the size of a list quadruples the time taken for a ripple sort, but only increases a Shell sort by a factor of about 2.7.

● Another method is **chaining**. This removes the need to make great amounts of swaps, by having another list, containing 'amendments' to the order of the main list. That is, each item in the list 'points' to the next item.

Say we have the array a(5,2). We have the list 1, 2, 3, and 4, which is:

```
a(1,1) = 1a(2,1) = 2a(3,1) = 3a(4,1) = 4
```

The fifth element is not yet defined. Now, the next list goes as follows:

```
a(1,2)=2a(2,2)=3a(3,2)=4a(4,2)=-1
```

These numbers point to the next part of the list. The -1 is to show that the list ends there. Our array is therefore set up as:a(x,1) = data itema(x,2) = next value of x in the list.

To print this, we would use the following:

```
10 i=1
20 print a(i,1)
30 i=a(i,2)
40 if i>0then 20
```

Okay, now how to add items. This is where the main speed advantage is.

We only have to stick the data on the end of the list, and then find the element that goes just before it, numerically or alphabetically or whatever. We change its pointer to our new addition, and set this pointer to what the previous element was just pointing to.Say our list is now 1, 1.5, 2, 3 and 4. We already have:

```
a(1,1) = 1    a(1,2) = 2
a(2,1) = 2    a(2,2) = 3
a(3,1) = 3    a(3,2) = 4
a(4,1) = 4    a(4,2) = -1
a(5,1) = 0    a(5,2) = 0
```

and so we have to make the following changes:

```
a(5,1)=1.5
a(1,2)=5
a(5,2)=2
```

This is a very easy method to use. It is most effective when used like push-down sorting, that is, during the data entry process. After a value is entered, a quick search should be made through the list and the value added, and the pointers adjusted.

These are just suggestions to get you started. The best sorting routines are those written in assembly language, however these generally impose a number of restrictions on the user, which BASIC's flexibility doesn't. ❑

Don't miss out on these great bargains!

Australian Commodore Review - SUITE 64

Disk Magazines Nos 1 to 14

Disk Magazine 1 $10

Forest Raiders : A full arcade game based on the movie Return of the Jedi. Centred around the forest chase. Full machine code shoot'em up.
Revolution : An article about the aftermath of the home computer revolution.
Recover II : This program enables you to unscratch files which you have accidentally scratched.
Bsave.bas :- Saves a block of memory using BASIC poke functions and the normal save command.
Nice Lister : Produced formatted program listings converting hard to read cursor controls, color controls and graphic symbols into expanded exclamations within curly brackets.
Old.bas : Load this one and use it to retrieve a program you accidentally NEWed.
Catalog : Use this when you want to obtain a catalog of your disk directory without losing the program in memory.
Ultra-editor : Enhanced BASIC editor with special commands to make program modification easier.
CHARgraphics : Design a BASIC screen using the normal full screen editor. This program will convert it into line numbers, full instructions included.
Line Transfer : Move a block of BASIC program to a new place.
NEW Reset : Modified cold start routine.**Color Window** : Full machine code routine for displaying a field color box on the screen.
Flash : Flash any area of the screen.
Input : A special program to enable entry of data without the usual problems of the user accidentally clearing the screen or entering illegal characters.
Border : Machine code routine to quick draw a border around any part of the screen.
Paint Demo : A Gpascal program to paint a hi-res screen area.

Disk Magazine 2 $10

ECF : A full demonstration version of the card file program with some limitations on the maximum number of cards. Try before you buy. Full instructions included.
Character Editor : Enables you to design your own custom graphics characters for use in game or other programs. Special boot loader also included.
Wacky.set : An upside down character set for the character editor.
Gothic.set : A gothic character set from the adventure game Underworld of Kin.
Computer.set : A computerish character set designed by Scott Wilcox.
Teleport : A simple terminal program.
3D.ult : An ultra BASIC 3D plotting program.
3D.bas : A standard BASIC 3D plotting program.
3D.sim : A Simon's BASIC plotting program.
Bytes and Bits : A complete tutorial explaining binary, hexadecimal and other computer number forms.

Disk Magazine 3 $10

Construct-brix : A drawing program that works using the joystick enabling you to move different pieces into position to create an entire picture. Full instructions built-in.
Bird Invaders : Machine code shoot'em up.
UDPG : Enables you to print user defined graphics on your printer.
Baspred : A BASIC sprite editor.
Calender : Prints out a calender for almost any year.
Point Square : For mathematics and geometry students.
Hangman : A fun computer version of this classic game with a good demonstration of character graphics.
Typing Practice : A simple touch typing program.
Labyrinth : A 3 dimensional maze type game.
Finance : Calculates loan repayments and various other costings.
Road Block : A fun multi-player, multi-speed block in your opponent game.

Disk Magazine 4 $10

Graphics Workshop : A suite of design programs for producing graphics characters, sprites, sprite animation, hi-res graphics and split screen effects. Complete with tutorials, fully menu driven.
Typing Tutor : A complete touch typing tutor that automatically works on your weaknesses. A keyboard displayed on screen highlights the key to be pressed encouraging you to touch type correctly. Includes space game for the young at heart.
Directrix : A disk filing system by Paul Blair. Instructions included.
Plurals : Educational program for English students.
Probability : Mathematics program for math students.

Disk Magazine 5 $10

Amiga Ball : A graphics animation based on the famous bouncing Amiga ball demonstrated during the Amiga's release.
The Porsche : An excellent multi-color hi-res picture.
Max Headroom II :A full screen animation.
Seven-Up : Brilliantly designed effect of a rotating can of Seven-up with accompanying music.
Sprite Database : Maintain a complete database of all your sprites as well as designing new ones and editing old ones. Instructions included.
Newsroom Loader : For MPS 802 and 1526 owners enables you to print Newsroom screens and borders.
Signwriter : Allows you to print a large sign to the MPS 802 or 1526.
Character Saves : Copy and save upper case, lower case or computer character set.
Dump Directory : Print a directory listing of any disk to your printer.
DD SGPrint : Prints a Doodle file to your MPS 802 printer.
PS BGPrint : Print Printshop pictures to your 1525/ MPS 802 printer.
Centronics Driver : This program enables you to use a Centronics printer in conjunction with a centronics cable connected directly to the user port. Such a cable is available as the GEOS cable. Just run the program and you can send any normal print output via the user port with or without ASCII conversion.

Disk Magazine 6 $12

Burt the Bug : Good example of character graphics animation in this fun game of collect the fruit while avoiding the boot.
Hangman : An improved version on our earlier release.
Amiga Pharoah : An Amiga picture ported to the Commodore 64 with some interesting effects and music.
Space Harrier : Music and graphics from the game.
Max Headroom : A still picture of this loveable character.
The Pacer : Brilliant perspective animation in this graphics demonstration with music.
Sade : Synthesized music by the popular artist.
Light Fantastic : An interactive demonstration enabling you to modify various aspects of this hi-res effect.
Dir828 : A compact disk directory program that sits in the cassette buffer.
Disk Filer : Enables you to catalog all your disks into one large file.
Disk Labels : Prints a disk label.
Dual Labeller : Prints two disk labels at a time.
Report One : Enables you to print your disk catalog in five columns based on either program name, ID or just the complete file.
1571 Utility : For Commodore 128 owners.
Home Inventory : Maintains a catalog and value for your entire home inventory. Ideal for insurance purposes.

Disk Magazine 7 $12

Dark Forest : Between one and four players strategy game where you must conquer your opponents by capturing land areas or castles.
Joystick Tester : Double check that your joystick is working in all directions.
Irish Jokes : A collection of humorous one liners from our resident Irish joker.
Dice Roller :Lost the dice to your favourite board game recently? This program will simulate a random two dice throw.
Demonstrations : Karate Kid II, Thrust Concert, 3D demo, Don Martin, No More Heroes, Recursion, Funny, Whizzy, Transputer, Classics, Special.
Ps/Pm/Nr Converter : Exchange graphics between Printshop, Printmaster and Newsroom.
Ps Graph/Epson/CBM : A program to print Printshop graphics on either an Epson, Commodore or other printer.
Chord Maker : For guitar students, define a chord and print it out.
Anti-ISEPIC : Removes ISEPIC front end off snap shotted programs.
The Sledgehammer : Compact BASIC and machine language programs to save disk space.
Fast Format : Format disks on your 1541 in around 20 seconds
Renumber : Renumber your BASIC programs for readability and space saving.
Graphics Editor :- A complete machine language sprite and character editor by Andrew Crowther.
Sidekick v3.C :A huge array of DOS utilities and generally helpful programs.
Home Finance : For helping manage your home budget.
Oscilloscope :Use in conjunction with the interface designed by Andrew Baines to produce an oscilloscope display on your screen.
Ultimate Writer :- Send musically accompanied letters with redefined characters to your friends.
C64/128 Boot Maker :- Enables you to boot a 64 disk from 128 mode.
Convert BASICs :- Converts from BASIC two and four to BASIC seven on the 128. The program will read a specified file from disk then print a display of all unknown key words and line numbers that use PEEK, POKE, SYS, WAIT and USR. Output can go to the screen or a printer.

Disk Magazine 8 $12

T & S Spreadsheet :- A full machine language track and sector editor for hackers and programmers.
Function Keys :- Enables you to define the Commodores eight function keys to a meaningful command.
Unscratch :- Undelete programs you have deleted.
Relocatable DIR :- A small program to retrieve a disk directory which may be placed anywhere in memory.
Tape Header Modifier :- Enables you to rename tape files.
Enterprise II :- Several hi-res pictures accompanied by interesting musical arrangements.
Eddie Demo :- Theme from the movie Beverley Hills Cop.
Games :- Full machine code shoot'em up.
ESCOS V2.99 :- Allows you to snapshot part of any graphics picture and produce a full screen display using 112 sprites.
Newsroom Camera :- Snapshot part of any hi-res graphic to produce Newsroom clip art.

Calendars :- An improved program to produce a calender for any year.
Cheque Writer :- Fill in the details and print a professional looking cheque on the Westpac standard small size cheque.
Clock :- A special clock which is displayed in the border.
Future Writer :- A full blown hackers word processor for sending musical messages using a variety of type faces.

Disk Magazine 9 $12

Disk Tidier :- Enables you to modify the order of your directory listing.
Menu Maker :- A simple boot loader for the front end of your own disks.
Doctor 64 :- Is your computer looking a little off color? This program passes a test through all the main devices selectable from a icon driven menu.
Sprites in the Border :- From our December 1987 issue demonstrating how to use sprites in the border this program enables you to edit your own message and display it scrolling in the border.
Sprite Clock :- The complete clock in the border program by Andrew Baines.
Metric Converter :- 22 conversions from Imperial to Metric and reverse.
Stock Market :- An educational game.
Star Trek :- For all Trekkie fans here is an original version of that famous game.
Little Invoicer :- As appearing in the December 1987 edition this program enables you to run a basic invoicing system.
Demonstrations : Alf, The Trap Demo, Future Shock, Pure Genius, DNA, XESS 1-Rendezvous, FTL Demo, Weird One II, Taurus II, Real Real Thing, Sights and Sound, Crazy Sample I, Brick Wall, Incredible, Drive Music, Get Funky.

Disk Magazine 10 $12.95

- Features ADOS Menu System
Diary - Version One of our Appointment Manager System. Both the compiled and BASIC version are included.
Depreciation :- Educational program for demonstrating and calculating the process of depreciation using three commonly used methods.
Define Function Keys :- Yet another function key definition program. This one is particularly easy to use.
Hamlet :- A good version of the popular game Othello.
Cup Challenge :- A two player only using two joysticks sailing simulation.
Star Gunner :- Shoot'em up perspective view.
Chemistry :- Features the chemical symbols of the periodic table. Ideal for year 8 and 9 students.
Music 64 :- A full featured music editing program written in compiled BASIC.
Print Sheet Music :- Enables you to print out sheet music on your printer in case you run out of the real stuff.
Slide Show :- A brief selection of impressive graphics.
Demonstrations : Amiga Memories, Beyond 2, Border Screen, Hero, Knight Games Music, Madonna Demo, The Working 64, Watch the Eye, ESCOS I, ESCOS with Music, Sting, Bairds Tale.

Disk Magazine 11 $12.95

80 Characters :- A special driver enabling the display of 80 columns of text. Useful for your own BASIC programs.
Graphic Converter :- Transfer pictures between a variety of formats.
Line Number Deleter :- Allows you to perform block deletes from BASIC.
Function Keys :- Here is yet another function key program.
System Locater :- Helps you find the SYS call to start a machine language program.
Fixed Directory :- Will reconstruct some disk corruption problems.
Disk Searcher :- Just enter the text that you are looking for and this program will try to locate it on your disk.
Disk Tidier :- Batch program deletion.
1541 Drive Alignment :- A quick utility which promises to align your disk drive - untested.
Disk Doctor :- Another program for reconstructing corrupt disks.
Hi-res Jigsaw :- This fun program lets you pick a picture and then it rearranges it into small blocks. Use the joystick to try and reconstruct the image.
Equation Manipulation :- Teaches the rules of equation manipulation. Helpful drill section.
Linear Equations :- Teaching and drill educational program.
Probability Demonstration
Printer Drivers :- Side Two of this disk contains a long list of printer drivers for GEOS including the 1526/ MPS 802 and many others.

Disk Magazine 12 $12.95

Appointment Manager V1.2 :- Updated from Issue Ten, now with search and print options.
Third Term 1.0 :- A fully menu driven terminal program.
Panes :- Based on the July Issue, 1988 of ACR, this program allows you to produce simple windows and menus. Written by Andrew Baines.
Atlantis :- A fast shoot'em up where you are a fish underwater. Excellent graphics, lots of levels.
Circle Navigation :- Calculates the distance between any two points on the globe.
Slope and Intercept :- Teaches the formulae involved for working out gradient, x and y intercepts. Full instructions included.
Music :- A selection of three music compositions by Eric Holroyd which you may include in your own programs.
GEOS Upgrade :- Side two contains a number of files which you should copy to a GEOS disk in order to upgrade to Version 1.3
Educational Programs : Portfolio, Balance, Investment, Bonds. All have built-in instructions.
Time Crystal :- An interactive graphic demonstration by Jim Sachs. One of the masters of Commodore 64's graphic capabilities. This was the beginnings of a game which he never completed.

Disk Magazine 13 $12.95

Charles - a huge graphics adventure with animation. You are Charles and must locate the missing computer and return it. Joystick control enables you to travel over 390 screens during five levels. It maintains high scores.
Stowaway - a text adventure by Base Seven Software. You are a stowaway on a ship - can you escape?
Blackjack - Play the computer at this favourite card game.
VCR Index - keep a file of all your favourite video cassette recordings, tapes or records.
Graphic Converter - An invaluable utility that enables you to transfer clip art type graphics from Printshop, Printmaster, Stop Press and even future programs to other formats. You can also convert between various picture types such as Blazing Saddles, Koala Painter, Art Studio, Image System, Artist 64 and others.
Disk Diskassy - The best disk utility ever written for the C64. It's in full machine code and includes a BAM editor, Directory Editor, Sector Editor, Index Maker and Menu Creator. All menu driven, very easy to use. Ideal for programmer and hobbyist.
Disk Label Maker - Print one or two sided labels complete with a directory of what's on the disk or customise your own entries to either an Epson FX or MPS801/803 printer.
Icon Changer (GEOS) - This program will let you edit them to your own design.
Easy DOS - A quick little program for obtaining a directory, scratching or unscratching files, renaming programs or changing your disk header.
Cruncher BASIC - Pushed for memory? This program will in seven parcels compact your program as much as possible by compounding statements onto one line.
Calc - A simplistic spreadsheet type program which is currently tape based but may be modified to save data to your disk drive.
Font Diskassy - A character editor that also lets you create pictures by combining characters together.
Graphic Demonstrations - A selection of pictures and music from hackers and artists around the world.
PLUS various other short utilities and fun programs.

Disk Magazine 14 $12.95

Electronic Cad Package - Design electronic circuits using two sets of predefined component symbols, alternatively define your own symbols. Use for any architectural or planning application.
Software Cataloguer - Keep track of all your favourite programs, which disk they are on and the type of file. Sorts and prints.
Character Thief - Extract redefined character sets from commercial games for your own personal use.
Pointer C64 - Give your C64 an Amiga pointer. This amazing function is accessible from BASIC with examples of use included.
Best single disk file copier - An easy to use program for moving files around your disk. Collection allows wild cards format from program and multiple copies.
Never ending scroll - Edit and design your own message scrolling across the screen in a variety of colours with optional flashing and at whatever speed you require. Saves to a machine code program which can be run. Works from IRQ.
SEQ file reader - Enables you to view sequential files such as those produced by Easy Script on screen.
CompuPage - A fun game for up to four players. Based on the popular board game Pay Day. And lots of demos.

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The Commodore Annual 1990 Software Guide

including hardware, joysticks, cartridges

SOFTWARE AVAILABILITY IS always a sore point with computer owners. Well, here's a list of all the titles we found available in Australia. Your local computer store should be able to order in the product you're after. A code for the distributor or importer is listed with each program along with the current recommended retail price. Prices often change from store to store - and as new versions of products are released.

Your dealer can contact the distributors using the details at the end of the listing. Distributors are often helpful too if you require further product information which your dealer cannot help you with.

We have not listed any games titles im this Software Guide - there are so many. But there is a list of games on page 62 with distributorr and in most cases prices.

Recommended retail prices and availability are based on information supplied by those distributors who responded to our enquiries. The distributor listed is not necessarily the only or the exclusive distributor of that product. ❑

Accounting

Calc Now
ECP 22.95

Calkit
ECP 31.95

Electronic Cashbook
A full cash book program for home and small business. Australian designed and supported. Recommended.
CMT 89.95

Electronic Checkbook
Cross referenced reconciliation program.
PAC 29.95

Financial Cookbook
ECP 22.95

Home Banker
Suite of financial planning programs including a chequebook organizer, loan amortizer, depreciation calculator, savings organizer and mortgage manager.
PAC 19.95

Calc kit

Kwik Check
Cheque reconciliation with expense analysis.
PAC 16.95

M128 General Ledger
Includes features such as a standard chart of accounts preset, set up with 1 - 13 accounting periods, add/delete or change as required, four digit account codes, prints full range of financial reports, and more.
CMT 59.95

M64 Stock Control
Handles over 1000 stock items as well as prints price lists, stocktaking lists, stock status and reorder reports and sales analysis. Menu driven operation with detailed manuals, compiled for increased speed.
CMT 59.95

Personal Inventory
ECP 45.95

Pro Tutor Accounting 128
An accountancy learning package that combines real life transactions with computer flexibility to present General Ledgers, T-Accounts and Balance Sheets. Consists of six modules containing over 3000 transactions
CMT 89.95

Books

1541 Repair & Maintenance
CMT 34.95

1571 Internals
CMT 34.95

Adventure Gamers Handbook
CMT 24.95

Anatomy of the 1541
CMT 34.95

Anatomy of the C64
CMT 34.95

Big Tip Book for C64/128
Some of the most popular and useful shortcuts for the C64/128. An in-depth guide to the treatment of BASIC, with tips on hardware, disks and drives, printers, machine language and communications.
CMT 34.95

C128 Basic 7 Internals
CMT 39.95

C128 Basic Training Guide
CMT 29.95

C128 CP/M Users Guide
CMT 34.95

C128 Internals
CMT 34.95

C128 Peeks & Pokes
CMT 29.95

C128 Tricks & Tips
CMT 34.95

C64 Advanced Machine Language
CMT 29.95

C64 Compiler Design
CMT 34.95

C64 Graphics
CMT 34.95

C64 In Science & Engineering
CMT 34.95

C64 Machine Language
CMT 29.95

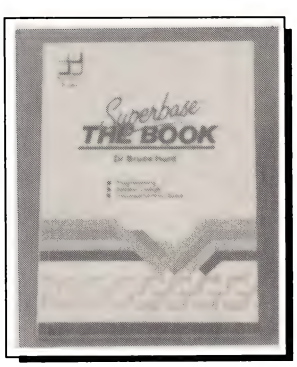
C64 Peeks & Pokes
CMT 29.95

C64 Printer Handbook
CMT 34.95

C64 Programmers Reference Guide
CMT 39.95

C64 Tricks & Tips
CMT 34.95

C64/128 Collection Vol. 2



Superbase The Book

CMT 37.95

Commodore 128 Subroutine Lib.
CMT 34.95

Flying Flight Simulator on Instruments
CMT 21.95

Geos Inside & Out
Instruction manual for GEOS.
PAC 49.95

GEOS Official Programmers Guide
CMT 44.95

Graphics and Sound
ECP 19.95

How to Get the Most Out of BASIC 8
Book and 2 disk set filled with examples, explanations and demos as well as how to create your own BASIC 8 animations. Topics from planning your project, the 3D environment and animation details are discussed.
BRI 0.00

Ideas for use on the C64
CMT 24.95

Machine Language Games for the C64
CMT 34.95

Maniac Mansion Hint Book
OZI 0.00

Personal Acct. Manager C64/128
CMT 29.95

Quest for Clues II
Solutions to 40 adventures
CMT 39.95

Quest for Clues
CMT 44.95

Second Book of 128
CMT 39.95

Second Book of Machine Language
CMT 29.95

Superbase the Book
CMT 29.95

The Art of Desktop Publishing
CMT 34.95

The Complete Desktop Publisher
CMT 49.95

The Creative Printmaster
Learn design tips from professional artists that you can use in PrintMaster, The Print Shop and The Newsroom. Illustrated with over 250 pages.
DFL 27.99

The Faery Tale Adventure Hint Book
OZI 0.00

Ultima V Clue Book
DFL 19.95

Word Attack! Workbooks
Available for Grades 2, 3 and 4. They provide activities to build basic skills with adjectives, nouns and verbs.
DFL 8.95

Word Perfect Expert Advisor
CMT 49.95

Zak McKracken Hint Book
OZI 0.00

CAD

CAD 64
Latest version of Abacus software. Enables exact scaled output to many types of printers.
PAC 69.95

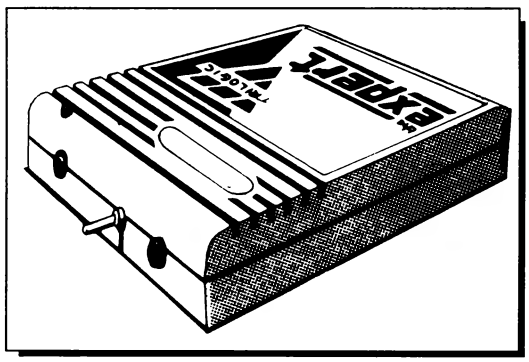
Cadpak 128
Complex, powerful technical drawing program
CMT 79.95

Cadpak 64
A professional design tool to enable you to enter intricate or simple drawings with the keyboard, lightpen or 1531 mouse. The flexible object editor lets you create libraries of furniture, electronics and more.
CMT 59.95

Circuit Symbol Library Disk
For use with Home Designer 128. Over 100 symbols which can be incorporated into schematics or engineering applications. With the aid of Home Designer 128, you can scale and rotate symbols as you require.
BRI 0.00

Home Designer 128
CAD package which allows you to create accurate and detailed drawings. Includes scaled printing to dot matrix printers, keyboard/mouse/joystick input, library figures, horizontal/vertical lines, translation, zoom.
BRI/CMT 59.95

Spectrum 128D
80 Column drawing system for 128D or 128 with 64K video RAM upgrade. Uses all 16 colours on 640 x 200 res. screen with additional 128 colours thru dithering. Menu driven with text mode, compatible BASIC 8 files.
BRI 49.00



The Expert Cartridge

Cartridges

Action Replay MK V
Warp 25 disk turbo, backup ability and many more features.
PAC 139.00

Diagnostic Cartridge
HPD 54.95

Economical Fastload Cartridge
HPD 24.95

Epyx Fast Load Cartridge
Provides extended commands to enable disk access as well as speeding up loading times by a factor of about 4. Also has a simple machine language monitor.
QUE 49.95

Expert V3.2 + Utility Disk
HPD/HEN 135.00

Expert V4.1R + Utility Disk
HPD 129.95

Final Cartridge III
Disk turbo of up to 15 times, scren dump, built-in notepad, desktop environment and extended BASIC with compacter.
PAC 129.00

Freeze Frame 3B
Quick easy to use snapshot cartridge for archiving programs.
MIC 65.00

Freeze Machine
Enhanced Freeze Frame with game cheats, LAZER turbo, disk menu system, snap shot, and more.
MIC 99.00

Reset Cartridge
MIC 12.95

Super Snapshot V4
Built-in DOS Wedge of simplified disk commands, Turbo-DOS system speeds disk operations up to 5 times. Also, programmable function keys, file copying and copy graphics to disk in Doodle/Koala format. ML monitor.
CMT 119.00

Turbo Menu/Fastload Cartridge
This cartridge features up to 5 times normal loading speed with both 1541/1571 drives as well as simplified DOS commands for loading/deleting files, formatting disks as well as stoppable directory listing, etc.
HPD 44.95

Warp Speed
Some of the 36 built-in features include:- loads/saves up to 10 times faster, supports 40 and 80 column mode. Works with 1581 and MSD drives, built-in machine lang-

Creating with Garfield

uage monitor, multi-drive support, assemble command.
MSP/CMT 59.95

Databases

Bank Street Filer
Includes a tutorial program as well as onscreen in structions. Add, delete or rearrange information very easily.
DFL 49.95

Fleet Filer
Fast, menu driven database that can handle up to 5,000 records and 20 text or numeric fields. Create Multi- Column labels (up to nine across) and generate reports Sort records and input/output information to 2+ or 4
CMT 39.95

Instant Recall
Database which holds data in RAM for instant recall.
PAC 39.95

Certificate Maker

Kwik File
Database for the first time user with 50 definable fields.
PAC 16.95

Magpie Database
Programmable data management software.
PAC 59.95

Pocket Filer II
QUE 69.95

Superbase 128
Programmable database manager with fast access to records. Ability to reorganise file structure
OZI/CMT 149.95

Superbase 64
Database Manager with fast access to records. Ability to reorganise file sructure as needs dictate.
OZI/CMT 88.95

The Filer
Simple, powerful database with pulldown menus
PAC 34.95

The Kitchen Manager
Recipe storage and retriveal system with computerized weight reduction guide.
PAC 19.95

Xper
"Expert System" for the C64/128. You can build your knowledge base by using simple entry procedures, and then use the search function to make complex decisions Includes full reporting and data maintenance functions
CMT 59.95

Desktop Publishing

Art Library 1
Contains art for Lets Make Greeting Cards, Signs and Banners, Calendars and Stationery.
PAC 14.95

Award Maker Cartoon Library
CMT 29.95

Award Maker Education Library
Required Award Maker Plus program disk and covers topics such as Fit America, Reading, Writing, Spelling Arithmetic, Painting, Drawing, Pottery, Honorable Mention, Special Person, Thanks!, Trying Hard and more
CMT 34.95

Award Maker Plus
CMT 59.95

Award Maker Sports Library
Requires Award Maker Plus program disk and covers sports baseball, basketball, bicycling, bowling, cross country, diving, football, golf, gymnastics, karate, skiing, soccer, swimming, tennis, running and more.
CMT 34.95

Award Ware
Design your own certificate and banners.
PAC 36.95

Banner Band Plain Colours
45ft Roll tractor paper for use with Printshop, etc. to make banners. Blue, gold, green, pink, white and yellow.
CMT 19.95

Banner Band Printed Borders
45ft roll tractor paper for use with Printshop, etc. to make banners. Birthday, Christmas, Party and Congratulations design.
CMT 19.95

Billboard Maker
Print graphics to sizes up to 4 feet by 3 feet. Allows you to load files from graphics packages and then to print them out.
BRI 43.00

Bumper Sticker Maker
Produce your own bumper stickers on the self-adhesive blanks provided in the package.
PAC 59.95

Business Card Maker
Incorporate graphics onto the business card blanks that are included in the package.
PAC 29.95

Business Card Maker
Create your own business cards with your own logo. Store your card designs in the "Card Library". Requires disk drive, joystick, Commodore or compatible printer, printer interface, Commodore 64, 64C or 128 (64 mode).
CMT 89.95

Business Form Shop
CMT 59.95

Certificate Maker
Over 200 awards and certificates, as well as 3 dozen colourful seals to add personality.
DFL 39.95

Certificate Maker Library Volume 1
Works with Certificate Maker and includes new graphics and more borders, plus dozens of foil seals, stickers and over 100 new certificates.
DFL 29.95

Certificate Maker Library Volume 2
CMT 29.95

Certificate Maker Library Volume 3
CMT 29.95

Create with Garfield! Deluxe Edition
Stimulates writing/artistic skills and encourages creative thinking, as well as providing practice in writing dialogue. Over 200 pieces of art provided including borders, typefaces and printing out in colour.
DFL 54.95

Fantasy Art Gallery - Printmaster
CMT 39.95

Graphics Label Maker
Make graphic disk or address labels with the aid of Print Shop graphics.
PAC 19.95

Label Maker
Interfaces with Easy Script, Fleet Filer, Fleet System
Contains pre-designed layouts for 11 different types including envelopes. Features WYSIWYG screen display, editing, freeze areas, increment counter.
CMT 49.95

Let's Make Calendars and Stationery
Make your own calendars or letterheads.
PAC 19.95

Let's Make Greeting Cards
Design and produce your own greeting cards for various occasions. Includes fancy borders and graphics.
PAC 19.95

Let's Make Signs and Banners
Enhanced fonts and graphics make printing your own banners and signs easy.
PAC 19.95

Newsmaker 128
Will work on C128 in 64K video RAM upgrade installed. Creates newsletters, reports, signs or posters. Can be combined with wordprocessors and graphics can be imported from Printshop/Sketchpad 128/Basic 8.0.
BRI/CMT 43.00

Poster Maker 128
Printer utility which allows you to print out BASIC 8 compatible graphics in sizes from 2 foot square to a 5 foot square. Supports most popular dot matrix printer, or save to disk as a picture file.
BRI 39.00

Print Kit
The graphics and borders in this Sesame Street based program can be used with Print Power.
PAC 24.95

Printmaster Plus
Create customized output with features such as more typefaces/styles, improved design interface, preview feature, two graphics on the same page, graphic editor print multiple copies.
CMT 59.95

Printshop
plus bonus graphics pack
CMT 69.95

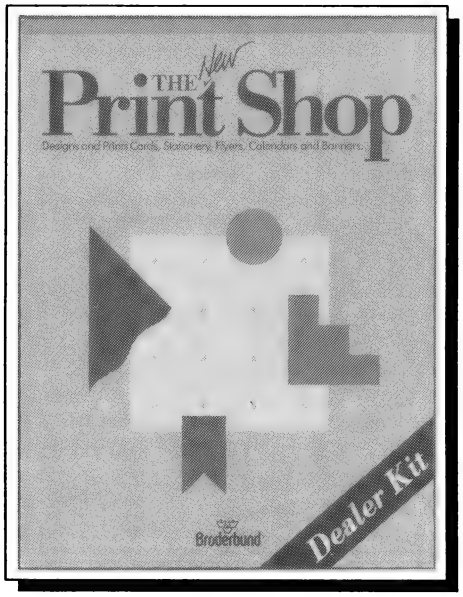
Printshop Companion Graphics Pack
Gives extra features and power to Print Shop. Includes a new Graphic Editor, Title Magic, Calendar mode, 12 new typestyles, capture and clip artwork from other programs, 50 new border designs, Creature Maker.
CMT 54.95

Printshop Holiday Graphics Pack
Includes designs for 27 holidays and gives you over 100 fonts, borders, graphics and designs.
CMT 39.95

Stop Press!
Mix text and graphics, and choose from 50 fonts. Shows on screen exactly as it will print out. Also contains clipart and graphics editor.
PAC 79.95

Tas-Sign
Production and printing of signs, posters, banners and large notices. 6 distinctive lettering styles with characters at any height from less than 25mm to full width of paper, across or along the printer paper.
DOL 59.95

Teddy Bear*rels of Fun
Contains over 200 pieces of art as well as borders and a text writer. Supports over 30 printers, the C64 version will not print in colour. Features a very easy to use



Print Shop

wordprocessor.
DFL 54.95

The Newsroom
Create your own newspaper with over 600 piece of clip-art, select from five fonts. Text automatically wraps around pictures. Print text on any popular printer on letter or legal size paper.
DFL 49.95

The Print Shop
Personalise your communications by designing your own cards and signs. Features 8 typestyles in multiple size and 3 formats (solid, outline and 3D). Also includes a graphic editor and text editing ability, and much more
DFL 64.00

The Print Shop Paper Pack
120 sheets of paper and 42 envelopes in several different colours for use with The Print Shop.
DFL 29.95

The Print Shop School Version
Includes design elements such as eight typstyles in many different sizes and several formats. Nine border designs, 10 abstract patterns, dozens of pictures, a graphic/text editor, superimpose text over hires image
DFL 84.00

The Print Shop Graphics Library #1
Over 100 new graphics featuring holidays, special occastions, sport, games and school. Now also includes zodiac signs and animals.
DFL 39.00

The Printshop Companion
Print Shop Companion adds a calender maker to Print Shop and includes a Graphic Editor with drawing tools so you can customise/create your own graphics. Also includes tile Magic to make background patterns.
DFL 54.95

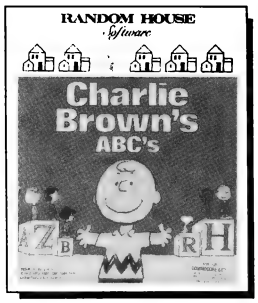
Desktop Video

Home Video Producer
CMT 74.95

Movie Maker
ECP 22.95

Photo Finish
Graphics painting program that is compatible with over a dozen popular graphics packages. Manipulate colours of hi-res or multi-colour image and custom edit grey scale to match. Print out on dot matrix printers.
BRI 36.00

Screen FX
Screen effects generator which



Charlie Brown's ABC's

includes 3 modules to allow you to create screens, create scripts of special effects and play scripts back. Supports up to 4 1541/ 1571 drives and creation of multiple disk presentation
BRI 50.00

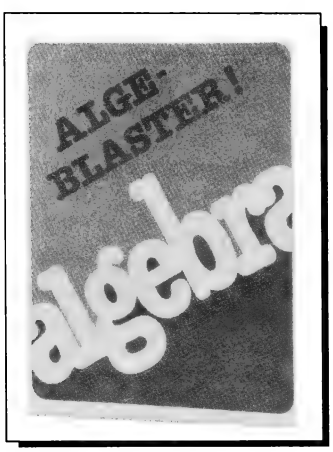
Video Basic
Provides extended graphics/sound commands to BASIC. Covers topics such as hi-res/multi-colour graphics, sprite graphics, Turtle graphics, game features and sound features and provided programming notes.
CMT 59.95

Video Wizard
Catalogue your video tapes and the amount of time left on each tape. Also enables titling.
PAC 49.95

Dust Covers

Commodore 1001/1541/1571 Drives
CMT 12.95

Commodore 128 cover
CMT 12.95



Alge-Blaster

Commodore 128D cover
CMT 12.95

Commodore 64 (Old Style) cover
CMT 17.95

Commodore 64C (New Style) cover
CMT 12.95

Commodore MCS 810/820 Printers cover
CMT 17.95

Commodore MPS 1000 Printer cover
CMT 17.95

Commodore MPS 803 Printer cover
CMT 17.95

Education

ABC's
Colour-in the ABC's on the computer or print them out for your children to colour-in by hand. Age preschool and up. DFL 21.95

Absconded Convicts
Database about the convicts that escaped during the first quarter of 1838.
SAT 40.00

Adding with Objects
Add two groups of objects. Grades 1 and 2.
PAC 19.95

Addition/Subtraction
Four programs to teach addition and subtraction. Sample programs are included to assist. Ages 6 - 8.
PAC 14.95

African Farming Game
Places you in the position of a small farmer trying to survive droughts, disease and starvation
Sat 40.00

Alge-Blaster!
Contains over 670 problems covering 21 differing topics in five areas of algebra to help pre-algebra and algebra students learn the basic steps. There are three learning activities provided to accomplish this.
DFL 69.95

Alge-Blaster! Data Disks
Topics covered include Equations, Factoring, Monomials and Polynomials.
DFL 34.95

Algebra 1
Complete approach to every algebraic concept. Volume 1 includes numerals, number lines, number systems and evaluating expressions. Use each volume individually or use the entire series.
OZI/CMT 52.95

Algebra 2
Volume 2 includes axioms, solving equations, functions and inequalities.
OZI/CMT 52.95

Algebra 3
Volume 3 includes monomials, polynomials, factoring and quadratic trinomials.
OZI/CMT 52.95

Alien Addition
Basic addition facts using alien theme.
DFL 39.95

Alligator Mix
Improve in addition and subtraction by feeding hungry alligators.
DFL 39.95

Alpha Build
Develops understanding of upper/lower case letters and letter/word recognition. Ages 4 - 8. Cartridge only.
PAC 24.95

Alphabet Circus
Six activities featuring the circus to teach children letter recognition, upper and lower case, text creation and more.
DFL 39.95

Alphabet Zoo
By associating letters with sounds the child is helped to develop their letter recognition skills. Ages 3 - 7
PAC 24.95

Animal Kingdom
Contains six activities to help your child learn about animals and develop language arts, comprehension and discrimination skills. Includes All About Animals, Who Am I, Animal Spells, Animalgrams, Whats Different etc.
DFL 39.95

Anna
Interactive fiction - includes book *The Seed's Inheritance* by Colin Thiele.
SAT 55.00

Arrakis Advantage Educational Software
Series of animated educational software including Biology 1/2/3/4, Algebra 1 Vol 1/2, Algebra 2 Vol 1/2, Algebra 3 Vol 1, Trigonometry, Chemistry 1/2, Geometry 1/2, Physics 1/2, Statistics.
PAC 29.95

Astro Talk
Astrology program to complete accurate natal horoscope by using birth date, time, and geographic co-ordinates Astroguide teaches astrology terms and their meaning. Print your horoscopes to paper. Requires 64K memory.
MSP 19.95

At the Zoo
CMT 39.95

Aussie Quiz
Allows teachers and students to create quizzes on any topics they choose.
SAT 40.00

Bagasaurus
Develop vocabulary and reading comprehension skills by travelling to far away places with Bagasaurus and answer questions to finish his journey. Ages 6 - 9.
PAC 19.95

Basic Maths Facts
Sharpen skills in identify maths operations. Grades 1 to 6.
PAC 19.95

Birds 'n' Bees
Teach your children about themselves and their development. Access level is set by the parents. The program looks into various aspects such as AIDS, sexual

harassment/abuse and the childrens reactions to these.
PAC 29.95

Boppie's Great Word Chase
Contains 256 built-in words with the option of creat- ing individualised spelling lists up to 32 words each. Features eight levels of play, including a trainor level. Chosen from Zaner-Bloser spelling series.
DFL 39.95

Build a Book
MSP 39.95

Build a Book Refill Pk #1
Riddle/Planet/Circus
MPS 29.95

Build a Book Refill Pk #2
Holiday/Dragon/Sct Mt
MSP 29.95

Charlie Brown's ABC's
Animation to teach children letters and words. Seven special activity cards are included to show both upper and lower case letters.
DFL 24.95

Classic Fantasies
Three text adventures - The Time Machine, Lost World, Journey to the Centre of the Earth - 10 supporting databases, classroom ideas.
SAT 40.00

Classic Fantasies Support Material
Resource materials for Classic Fantasies. 24 Word Hunt files, 3 Story Paths, and much more.
SAT 40.00

Color Me: Computer Colouring Kit
Lets children create their own pictures complete with text and add pre-drawn characters. Make stickers, buttons, cards and coloring books. The package includes program disk, picture disks, crayons, buttons, etc.
MSP 49.95

Comet Halley
Adventure game, database, journal and diary - years 5-9.
SAT 40.00

Commbase
Easy to use disk based database management system, statistics option. Recommended for use on stand alone machines.
SAT 40.00

Convict Ships
Set of databases about the many ships that transported convicts from England and Ireland between 1800 and 1868.
SAT 40.00

Comprehend Interactive Novels
Become the main character by communicating with the computer using full sentences. Hundreds of animations can be included by using The Graphics Magician. Titles include OO-Topos, Transylvania, The Crimson Crown.
DFL 29.95

Cordial Stall
Simple but entertaining game for year 4 to 7 primary school.
SAT 40.00

Cross+Roads
Database about all the Popes since St Peter.
SAT 40.00

Cryptocube
Word game, spelling teacher and vocabulary builder in one. Guess the letters behind the boxes and figure out the words on the rotating cube. Built-in puzzle generator. Ages 8 to adult.
OZI 52.95

Decimal Dungeon
Answer problems correctly to escape the crystal cavern of the dungeon master. You must add, subtract, divide to escape. Incorrect answers are given a full explanation.
DFL 39.95

Decimals Fractions and Percentages
Four programs covering decimals, fractions and percentages using animation. Ages 7 - 10.
PAC 14.95

Delta Drawing
This package remembers the movements required to produce a picture. At first, draw pictures that produce a computer program and learn to write programs that produce pictures. Cartridge only. Ages 4 - adult.
OZI 52.95

Demolition Division
Practise basic division facts.
DFL 39.95

Designasaurus
Survive as Brontosaurus, Stegosaurus or Tyrannosaurus Rex in this multiple skill level learning game. You can create your own prehistoric giants and print them out. Print out 12 different dinosaurs with description
CMT 39.95

Dinosaurs are Forever
A colouring-in program for 3 years and up. Create calendars with 26 different dinosaurs, includes a banner printing option also. Black and white or colour printouts available. Built-in history of dinosaurs.
CMT 39.95

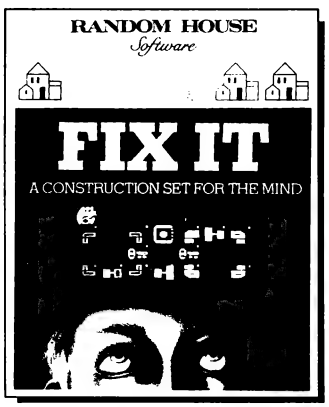
Disasters
Six databases, covering storms, earthquakes, floods etc. Over 1000 records.
SAT $40.00

Dragon Mix
Improve in multiplication and division by playing the part of a dragon protecting a city.
DFL 39.95

Dragon World
C64 version of the very popular 4MATION original. Adventure game with resources, audio tape of story.
SAT 50.00

Early Games for Young Children
Collection of nine different learning games. Children can select and play the games by themselves. Teaches a wide variety of basic skills and a introduction to computer learning.
DFL 39.95

Easy as ABC
A series of five games to introduce the alphabet, and upper and lower case.



Fix It

includes disk of animated graphics.
DFL 39.95

Easy Learning Film Maker
Children can make their own animated stories. Ages 6 - 12.
PAC 21.95

Easy Learning Learn to Spell
Animated game to develop spelling skills. Ages 7 - 12.
PAC 21.95

Easy Learning Learn the Alphabet
Teaches letter recognition and upper and lower case. Ages 4 - 8.
PAC 21.95

Easy Learning Learn to Add
Animated game to teach maths. Ages 3 - 7.
PAC 21.95

European Nations & Locations
Learn about important landmarks, capitals, historical, current events and neighbouring countries. Move out- lines of countries to their correct locations. Add your own questions. Ages 9 to adult, 1 or 2 players.
OZI/CMT 52.95

Face Maker
Help children to identify body parts, movements and improve their memory. Available on cartridge only. Age 3 - 8.
OZI 17.95

Family History Kit
Database package containing Family Names and Family Trees. Build your own Family

Profile.
SAT 40.00

Findabook
Database on more than 1,000 good children's books available in Australia.
SAT 40.00

First Fleet
Database and worksheets.
SAT 40.00

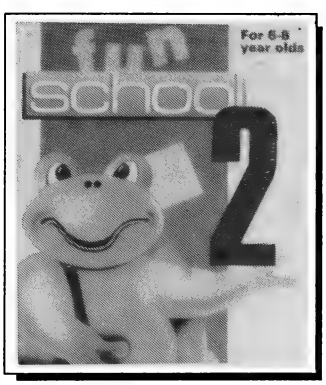
Fix It
Construction set for the mind, for all ages. Contains 200 different, progressively harder kits to be put together. Use joystick, mouse or keyboard. Grades 3 - 12
DFL 24.95

Fix It - Master Edition
Construction set for the mind, even harder problems than Fix It!
DFL 24.95

Flowers of Crystal
Classic educational adventure game, has disk, teacher's guide, story book, audio cassette and map. Teaching activities cover most areas of curriculum.
SAT 50.00

Fraction Action
Escape from the Mad Professor's Mansion by answering fraction problems correctly. Full screen explanations are given for incorrect answers, and there are three difficulty levels.
DFL 39.95

Fraction Factory
Learn about fractions with colourful graphics and musical sounds. Hints appear to help your child to understand the concept of fractions and arrive at the correct answers.
DFL 34.95



Fun School 2

Fraction Fever
Introduces fractions and the graphical representation of fractions. Ages 7 - adult. Cartridge only.
PAC 24.95

Fractions 1
Covers numerator, denominator, reducible fractions, improper fractions and mixed numerals in five programs. Ages 7 - 10.
PAC 14.95

Freddy's Puzzling Adventures
Freddy the turtle uses Number Puzzle, Word Puzzle and Customised Word Puzzle to teach children problem-solving and logical thinking skills. From age 7 up. Create individual puzzles, includes graphics/music/ animation.
DFL 49.95

Fun on the Farm
Computerised colouring-in program. Colour on the screen or print out and colour by hand. Age preschool and up.
CMT 19.95

Fun School 2 Series
Multiple subjects are presented in game format. Animation and sound effects are also used. The series is available to suit ages 2-8 and up.
PAC 24.95

Granny's Garden
Structured adventure game for lower and middle primary school children. Lots of graphics, great fun.
SAT 40.00

General Knowledge Builder
Develops general knowledge in five key topics. Grades 3 to adult.
PAC 19.95

Geometry
Four programs designed to teach the basics of geometry Ages 6 - 8.
PAC14.95

Grandma's House
Children can explore the relationships of objects they encounter in everyday life. Ages 4 - 8.
PAC 21.95

Hammurabi
You manage the ancient city of Sumeria. Use grain to buy and sell land, plant crops and feed the people - but life isn't easy.
SAT 40.00

Holidays & Seasons
Computer colouring book for ages 3 and up. Make your own posters, banners and calenders. Includes 30 line drawings of events throughout the year and a sheet of stickers to decorate printouts. Colour printouts also.
CMT 39.95

Hop Along Counting
Helps children to gain a fundamental understanding of how number symbols are used to represent quantities. Ages 3 - 6. Cartridge only.
PAC 24.95

It Happened on Saturday
From the Trend Reading Series, in encoded form, for users of Direct Helper. Reading Age 7. Contains two books and two disks.
DFL 39.95

Java Tara: the Island of Fire
Adventure game for 9-10 year olds that takes place on a mythical tropical island. Calls for concentration, logic and thinking ahead, also introduces themes of pirates, sharks etc. Includes 100 page resource book.
SAT 40.00

Kadimakara - Creatures of the Dreaming
A window into our prehistory - students discover the world of Australian dinosaurs, the giant short-faced kangaroo, the 7 metre goanna and the family of diprotodons., Picturebase, Timeline, Teacher's Guide, supplementary software.
SAT 50.00

Keyboard Cadet
Self-paced typing program using graphics to teach the inexperienced typist or to sharpen your skills. Teachs both QWERTY and DVORAK, includes timed typing tests and displays correct finger positions.
MSP 19.95

Keys to Typing
ECP31.95

Kids on Keys
Familiarise children with the computer as they learn the letters, numbers and words by associating them with images on the screen. Ages 4 - 9. Cartridge only.
OZI 52.95

Kidwriter
Children can write their own stories, with graphics and backing music. Encourage creativity and teach basic computer skills at the same time. Ages 6 - 10
OZI/PAC 52.95

Kindercomp
A collection of six learning games to encourage children to use and learn about a computer. Ages 3 - 8.
OZI 52.95

Landmark
Full reference bible. King James Version. 31 disks.
CMT 189.00

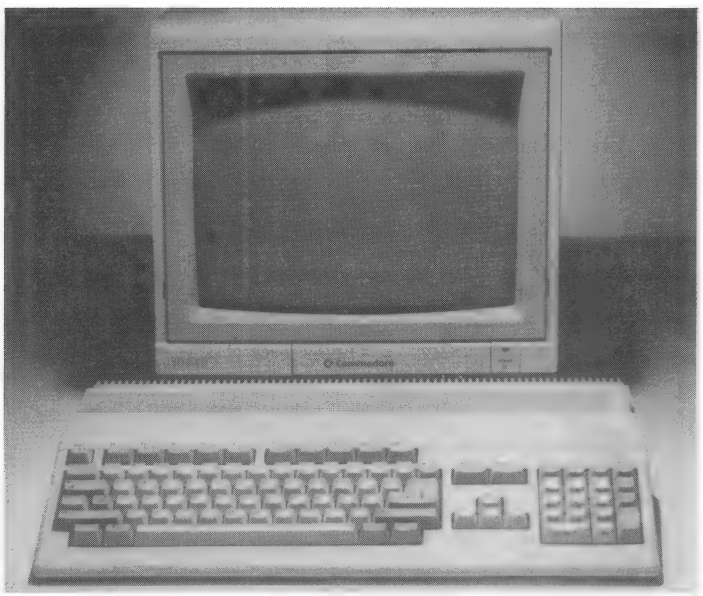
LCL Micro Maths
Advanced maths program. Year 9 - 11.
PAC 49.95

Learning to Count
Introductory maths program to help children to identify numbers, groups and objects. Ages Grade Pre- School - 1.
PAC 19.95

Letters for You
Learn about the alphabet using pictures. Colour them in on the computer, or print them out and colour them in yourself. Preschool and up.
DFL 21.95

Mastertype Writers Bundle

IF YOU'VE BEEN CLEVER ENOUGH TO BUY THE WORLD'S SMARTEST COMPUTER, JOIN THE CLUB.



MEMBERSHIP OPEN TO: COMPANIES, INDIVIDUALS, AMIGA USER GROUPS, SCHOOLS AND TERTIARY INSTITUTIONS.

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Join Club Amiga now and receive a Textcraft Plus or Graphicraft program at no extra charge. (Each program normally retails for $89.)

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Exciting new programs and applications are being developed all the time as we explore the Amiga's outstanding computing and graphic capabilities. That's why you'll find membership to Club Amiga so rewarding. You'll receive a Commodore Amiga Review each month and the Commodore Amiga Review annual to keep you informed of the latest developments in Amiga applications and software.

You'll also be receiving a regular Club Amiga newsletter to keep you up to date with the latest developments.

In fact, if you join Club Amiga right now, you will receive, at no extra charge, an exciting software package worth $99.

That's worth more than half your membership fee already! That's just one of the ways Club Amiga will help you get the most from your Amiga system.

So why not do the smartest thing since buying an Amiga. And join the Club!

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Bonus offer *Selection: Textcraft ☐
Graphicraft ☐ Neither ☐

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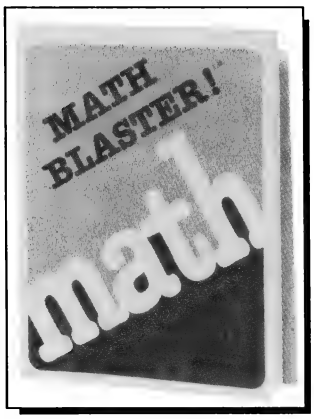


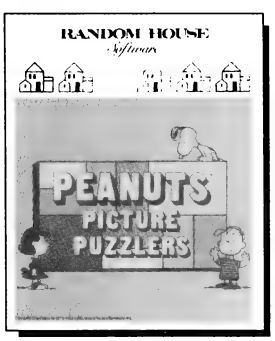
Math Blaster!

Typing instruction game. Include finger positioning drills, sentence typing lessons and rhythm instruction
MSP 49.95

Math Blaster!
Master basic maths facts with over 600 problems grouped into 25 "families". Covers addition, subtraction, multiplication, division, fractions, decimals and percentages. Editor feature - add your own problems.
DFL 69.95

Math Blaster! Workbooks
Grade 1 - Addition, Subtraction (both). Grade 2 - Addition/Subtraction (both). Grade 3 - Multiplication, Division (both). Grade 4 - Multiplication, Division (both).
DFL 8.95

Mathbooster
Allows students to improve their number skills using an exciting arcade-type game. Addition, subtraction, multiplication and division.



Peanuts Picture Puzzlers

Selectable problems and level of difficulty.
SAT 40.00

Math Games 1
SAT 40.00

Math Games II
SAT 40.00

Math Maze
Players learn addition, subtraction, multiplication & division facts as they move a fly through a maze collecting math answers. 40 different mazes, several skill levles. Design your own mazes. Ages 6 to 11.
OZI/CMT 52.95

Math Mileage
A colourful road rally game to teach basic addition and multiplication. Features three skill levels for beginners and "pros", up to four players in each race. Colourful graphics and sound enchance the package.
MSP 19.95

Maths Busters
An exciting animated game teaches addition, division, subtraction and multiplication. Ages 8 - 14.
PAC 21.95

Maths Drills
Five program series covering simple maths functions. Requires printer to print worksheets. Ages 6 - 8.
PAC14.95

Mavis Beacon Teaches Typing
This program checks your progress lesson by lesson, and tailors the typing course to your individual needs Features a lifelike keyboard and learning aids, speed, accuracy, completion meters on screen, with textbook.
MSP/CMT 49.95

Memory Manor
Improve memory skills by repetition and concentration. Cartridge only. Ages 4 - 8.
PAC 24.95

Meteor Multiplication
Helps to master basic multiplication facts.
DFL 39.95

Minus Mission
Practice in basic subtraction facts.
DFL 39.95

Mission: Algebra
Rescue your sister ship by using linear equations. Multiple difficulty levels, 40 built-in game paths and thousands of equations. Add your own paths and the program automatically creates new equations. 13 and up
CMT 39.95

Multiplication Hits
Using a baseball team, mathematical problems are solved. Grades 2 - 6.
PAC 19.95

Multiplication/Division
5 programs to introduce the principle of division and multiplication. Various levels of difficulty to allow for different age groups. Ages 7 - 11
PAC 14.95

News Writer
2 simple word processors for primary students.
SAT 40.00

Night Cats
From the Trend Reading Series, in encoded form, for users of Direct Helper. Contains two books and two disks. Reading Age 6.5
DFL39.95

Number Farm
Six activities to teach children numbers, counting skills. Music, animal sounds and animation make this a very entertaining package. Difficulty levels are matched to the child's skill.
DFL 39.95

Number Tumblers
Repetition and practice to teach children the basics of maths. Ages 8 - 12. Cartridge only.
PAC 24.95

Numbers Count
A computer colouring book to learn about numbers. They can be coloured on the computer or printed out and coloured by hand. Preschool and up.
DFL 21.95

Opposites Attract
Pictures in pairs, colour them on the computer or print them out and let the children colour them by hand. Preschool and up.
CMT 29.95

Pathweaver
Allows teachers and students to easily create reasonably complex text adventure games with up to 50 locations. No programming knowledge necessary.
SAT 40

Peanuts Maze Marathon
Develop logic and co-ordination skills by helping the Peanuts get out of hundreds of different mazes. The mazes change each time and feature animated graphics. Grades 3 - 6.
DFL 24.95

Peanuts Picture Puzzlers
Children can create their own jigsaw puzzle featuring the Peanuts gang or let the computer pick one. When the puzzle is solved, the picture comes to life in animation. Set the skill level to suit the child.
DFL 24.95

Picture Place
Vocabulary and word recognition skill builder. The program is designed to motivate the child's creative thinking and story writing skills. Ages 6 - 9.
PAC 19.95

Piece of Cake Math
Five games to help children learn progressively math concepts. Sharpen and refine their skills.
DFL 39.95

Picture Book
Creat stories using words and pictures. Over 200 pictures available.
SAT 40.00

Picture Book Companion
176 more pictures to go with

Picture Book.
SAT 40.00

Plan
Economics simulation- user manipulates labour, capital and land to produce maximum output.
SAT 40.00

Point Puer Lads
Database on criminal backgrounds and convict experiencesof 118 youngsters who spent time at the Port Arthur Penal Settlement.
SAT 40.00

Race Car Arithmetic
One to four players can enjoy this maths game. Each player has their own maths function and time and difficulty levels. Graphics and music add to the enjoyment
DFL 39.95

Ramfiler
Introduction to database management. Quick and very easy to use.
SAT 40.00

Read Easy
Educational reading practice game with over 60,000 different sentences. Six vocabulary levels that build reading comprehension and reading speed up to 1000 wpm Suitable for grades 1 - 6.
MSP19.95

Reading Skills Builder
Builds skills in rhyming words, Word grouping, Fiction and Non-fiction and sentence fragments. Grade 4 to adult.
PAC19.95

Red Hot Mountain
From the Trend Reading Series, in encoded form, for users of DIRECT Helper. Reading Age 8. Contains two books and two disks.
DFL 39.95

Remember!
Remember! lets you organise words, definitions, explanations and lists on any topic. Written, pictorial and musical hints teach you to recall material. Age 12 to adult. Comprehensive manual, built-in demonstration
OZI/CMT 79.95

Ribbit
Ribbit the frog knows dozens of actions and the aim of the player is to discover them.
SAT 40.00

Roll a Word
A picture oriented program to build a child's word recognition and spelling skills. From the creators of Sesame Stret. Ages 5 - 9
PAC 19.95

Sailing South
Database about passengers on the first nine ships which reached SA in 1836.
SAT 40.00

School Software Group A
This group contains Magic Maths (3 - 7), Better Spelling (9 - adult), Maths Mania (8 - 12), Better Maths (12 - 16).
PAC15.95

School Software Group B
This group contains Geography (12 - 16), Physics (12- 16), Biology (12 - 16), Chemistry (12 - 16).
PAC 9.95

Sea Speller
Helps children to recognise spelling patterns and rules, as well as teaching children how letters and letter combinations are used in spelling. Ages 7 - 12. Cartridge only.
PAC 24.95

Sesame Street
The series covers problem solving, predicting, logic and reasoning. Ernies Big Splash (4-6), Grovers Animal Adventures (4-6), Pals Around Town (4-6), Astro Grover (3-6), Big Birds Delivery (3-6), Letter Go Round (3-6)
PAC 21.95

Settlement
Simulation of problems of establishing a colony in the 18th century.
SAT 40.00

Shape and Colour Rodeo
Teaches children to recognize common shapes and colour discrimination in six activities. Sharpen hand-eye co-ordination and visual perception.
DFL39.95

SimCity
You are the City Planner and Town Mayor taking charge of a growing city. SimCity is a dynamic, real-time simulation loaded with animation and detailed sound effects.
DFL/CMT 54.95

Snoopy Writer
Generates colour pictures of the Peanuts gang with story starter sentences. Also guides children through each step of writing, editing and printing. Includes editing, printing, and word wrap features.
DFL 24.95

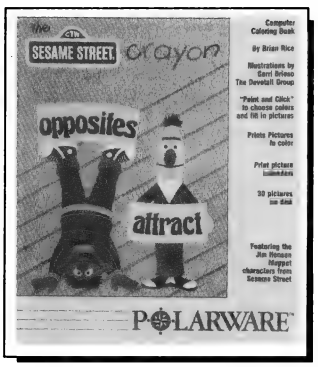
Snoopy's Reading Machine
Children who already know the alphabet can learn how to build words and word families are made. Five word families are taught by Snoopy.

DFL 24.95

So What's New
From the Trend Reading Series, in encoded form, for users of DIRECT Helper. Consists of two books and two disks. Reading Age 8.5
DFL 19.95

Softword
Easy to use word processor
SAT 40.00

Space Maths
Reinforce and teach mathematical princliples by trying to land a spacecraft on



Sesame Street

alien terrain. Ages 8 and up.
PAC19.95

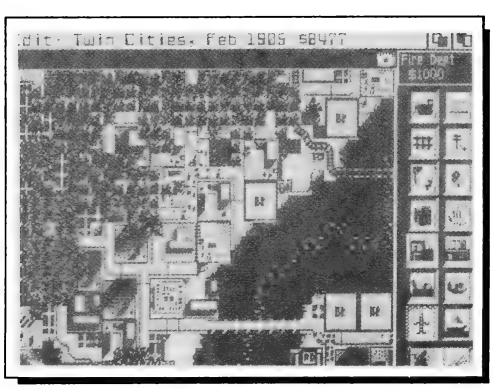
Speed Reader II Data Disks
Grades 5-6, 7-8, 9-12, University/Adult.
DFL 34.95

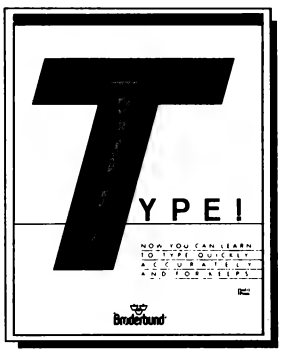
Speed Reader II
Increase reading speed and improve comprehension. Contains six different activities and 35 reading selections. Editor feature allows additon and analysing of your own material by the built-in grade analyser.
DFL 69.95

Spell It!
Reviews basic spelling rules and helps to learn the most commonly misspelled words. Includes 50 word lists covering 1,000 words in five difficulty levels. More than 20 spelling rules presented. Includes editor.
DFL 69.95

Spell It! Data Disks
Data disks for Spell It!, Grades 1-2, 3-4, 5-6.
DFL 34.95

Spellagraph


Sim City



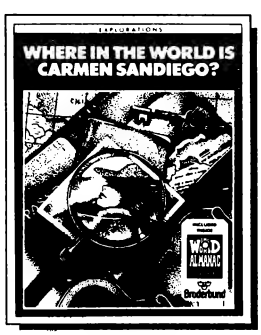
Type!

Players are shown panels coering a rebus. As you spell each word correctly, the panels are removed and the rebus revealed. Spelling words chosen from the Silver Burdette spelling program. Ages 7 - 14.
OZI 52.95

Spellakazam
As the child selects the correct letters, a magician releases animals from his hat. Word lists organised by rules and grade levels, with help for misspelled words. Ages 7 - 11
OZI 52.95

Spellicopter
Spellers fly a helicopter through clouds, over mountains and around UFO's to rescue letters, children must pick up the letters in the right order and return to base before fuel runs out. Ages 6 - 10.
OZI 44.95

Spelling Wiz
A wizard who zaps missing letters into words helps students to spell more than 300 words commonly mis-spelled.



Where in the world is Carmen Sandiego?

DFL 39.95

States & Traits
Active and exciting study of U.S. geography, history and current events. Add your own questions or use it as a trivia game for the whole family. Ages 9 to adult 1 or 2 players.
CMT 39.95

Story Paths
Write and read interactive stories. Create your own interactive books.
SAT 40.00

Subtracting With Objects
Subtract with objects. Grades 2 and 3.
PAC19.95

Subtraction Goals
Perform a series of successive subtractions to reduce a number to zero. Any errors are highlighted by the program. Grades 2 - 6.
PAC 19.95

Sudden Death
From the Trend Reading Series, in encoded form, for users of Direct Helper. Reading Age 8. Consists of two books and two disks.
DFL 39.95

The Body Transparent
Move bones and organs to correct locations. Learn what functions different body parts perform. Choose between male and female bodies, and multiple difficulty levels Add your own biology homework questions. Ages 10 - 16
CMT 39.95

The Direct Helper Scheme
Series of five computer programs to teach the slow reader. Includes SAY (word decoding), STORY (words in context), SPELL (spelling practice), HIDE & SPELL (spelling game), PREP (word editor for teacher/parent)
DFL 195.00

The Educator II
Three educational games combining graphics and game techniques with skill development. Suitable for ages 5 - 10
PAC 21.95

The Electric Crayon
Colour-in on the computer or print out and colour-in by hand.
DFL 21.95

The Grammar Examiner
Four different game boards with hundreds of grammar problems including punctuation, capitalization, verb tenses, subject-verb arrangment, adverb and adjective usage and homonyms. Create your own games. 10 to adult
OZI/CMT 52.95

The Musician
Compose musical scores to be saved or updated at a later time. Also includes drum synthesiser and an electric piano. Ages 7 - adult.
PAC 19.95

The Sesame Street Crayon
A computer colouring book. Colour in the pictures on the computer, or print them out and colour in by hand.
DFL 21.95

The Writing Adventure
Provides stimulation for intermediate students to be able to write well by offering instruction and assistance with software and print materials. Allows the student to create, edit, proof, save and print stories
DFL 79.95

Thinking Cap
CMT 49.95

This Land is Your Land
Computerised colouring-in program. Colour on the screen or print out for your children to colour by hand.
DFL 21.95

Ticket to London
Learn about London and Britian's history and tradition as well as solve puzzles and follow clues.
DFL 49.95

Ticket to Paris
Explore Paris from your home with realistic graphics and life-like situations. Play in French or in English
DFL 49.95

Ticket to Spain
As you travel through Spain, exploring historical land marks, you search for the family jewels. You will learn about Spanish culture, history and contemporary life.
DFL 49.95

Trapazoid
Draw triangles, squares, parallelograms and other geometric shapes to trap the Zoids and get them off your planet. Select the shapes you want to use and then opt for bonus questions. Ages 7 - 14
OZI 35.95

Tree of Knowledge
Primary school sentence building and discrimination program - the student plays a guessing game with the computer.
SAT 40.00

Type! School Version
Uses scientific research to teach typing. With the help of graphs you are shown how to improve, provides exercises to improve your skill. Create custom drills and print out progress reports. Includes game.
DFL 49.95

Up & Add'em
Helps children relate numbers to objects they see. Age 3 - 7. Cartridge only.
PAC 24.95

Verb Viper
The Verb Viper helps children to master regular and irregular verbs in present tense, past tense and past participle form.
DFL 39.95

Where in Europe is Carmen San Diego?
School Version.
Menu-driven program with animation to teach about geography, history and culture of various European nations and you try to catch the infamous Carmen San Diego. On-line database and notebook also.
DFL 79.95

Where in Europe is Carmen

San Diego?
Travel over 34 European countries to catch the Carmen and at the same time learn geography, culture and the history of the countries you travel through. Includes an on-line database and computerised notebook to help.
DFL 59.95

Where in the U.S.A. is Carmen San Diego?
This package includes Fodor's USA travel guide. Use this to stop Carmen from stealing the national treasures. There are 10 different detective levels.
DFL 59.95

Where in the U.S.A is Carmen San Diego? School Version.
Stop Carmen from stealing the national treasures. To help you, use the Fodor's USA Travel Guide and advance through 10 different detective levels.
DFL 79.95

Where in the World is Carmen San Diego?
You have 7 days to chase the criminal to her hideout with a warrant for arrest. Family favourite and winner of many awards.
DFL 59.95

Where in the World is Carmen San Diego? School Version.
Chase Carmen over the globe using your Crime Computer to work out the clues and The World Almanac. Learn about geography, history and culture as you travel.
DFL 79.95

Where's Baby Bear?
Junior primary illustrated adventure, with resource pack. Imagination and problem solving skills.
SAT 40.00

Which Number is Missing
Identify the missing number in a three number sequence There are three levels of play and animation is also featured. Ages Grade Kindergarten - Grade 1)
PAC19.95

Women's Series
Four databases on: Australian Women, Women in Science, Women in Society and Women in Sport.
SAT 40.00 each, 4 for 90.00

Word Attack!
Teaches new words, definitions and their usage and is effective for all ages and skill levels. Word Attack! has 675 words grouped into nine levels. 27 word lists including adjectives, nouns and verbs. Editor feature.
DFL 69.95

Word Attack! Data Disks
Grades 4-5, Grades 6-7, Grades 8-9 and Roots and Prefixes are available also.
DFL 34.95

Word Hunt
To improve reading comprehension at primary school age. Children guess what words are missing in a passage of text.
SAT 40.00

Word Hunt Companions
Vols I and II - six passages from 12 books. Vol 3 - 64 nursery rhymes.
SAT 40.00 each

Word Invasion
Practice in identifying words representing nouns, pronouns, verbs, adjectives, adverbs and prepositions by controlling the magic ring of a alien octopus.
DFL 39.95

Word Man
With the aid of a maze students are provided with practice in forming words with consonant-vowel-consonant and consonant-vowel-consonant-silent e patterns.
DFL 39.95

Word Master
Identify pairs of antonyms, synonyms and homonyms at three difficulty levels.
DFL 39.95

Word Radar
Match basic sight words by giving students the role of a control-tower operator scanning words which increase in length.
DFL 39.95

Word Usage Tutor
Practice in identifying mistakes in word usage. The program focuses on common errors. Grade 2 - 6.
PAC19.95

World Wide
Databases of demographic and economic statistics for 165 countries. Further databases can be created.
SAT 40.00

Genealogy

Family Tree
Control data on the family tree with features such as 1200 individual files per data disk, use several data disks for unlimited genealogies, alpahbetical and numeric index, search, produce family record sheets, etc.
CMT 89.95

Geos

Geocalc 128
A number crunching spreadsheet, GEOS compatible, for tracking and analyzing numerical information. You can create your own formulas, and perform "what if" cost projections as well as simple geometry calculations.
CMT 79.95

Geocalc 64
A GEOS compatible spreadsheet which performs simple geometric calculations to "what if" cost projections.
CMT 59.95

GeoChart 64/128
GEOS based chart generator. Includes nine chart types, import data from GEOS applications, change chart type quickly without affecting data, add, delete or change text and any time. As well as many more features.
CMT 49.95

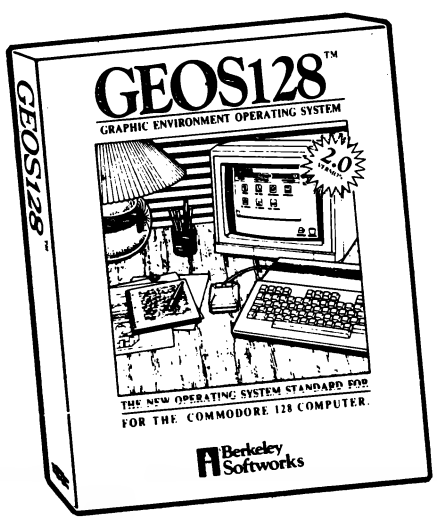
GeoDex
Create lists by name, address, phone number and more. Also includes GEO-Merge, and is GEOS compatible.
CMT 49.95

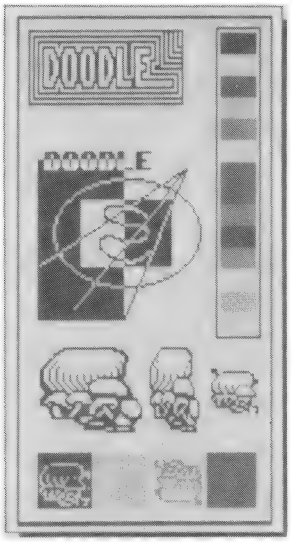
GeoFile 128
Database manager to sort, edit and prioritize information. GEOS compatible. CMT 79.95

GeoFile 64
A GEOS compatible database manager to sort and define priorities.
CMT 59.95

GeoProgrammer V2
An assembly language authoring tool and debugger which takes full advantage of the memory space available in both C64 and C128.
CMT 79.95

GeoPublish
Features include the ability to





Doodle

format columns, text flows around graphics, many fonts and font sizes, text justified within columns, import and rescale graphics, vertical/horizontal printing, flow borders around text
CMT 59.95

Geos 128 V2.0
Includes new applications such as GeoWrite Workshop, GeoSpell which were formerly sold separately. Easy to use icons, pull down menus and windows. WYSIWYG orientation. Fully compatible with other Geos products
CMT 89.95

Geos 64 V2.0
Berkely Softworks has improved exisitng applications and included new applications, such as GeoWrite Workshop and GeoSpell, formerly sold separately. Easy to use icons, pull down menus and windows. Compatible.
CMT 89.95

Geos Cheatsheet for C64/64C
CMT 9.50

Geos Desk Pack 1 64
Includes four GEOS compatible applications. Use the Graphics Grabber to import art from Print Shop, Newsroom and Printmaster graphics. Also includes Calender, Icon Editor and Black Jack Dealer.
CMT 1239.95

Geos Desk Pack Plus 128
This member of the GEOS family will import art from Print Shop, Newsroom and Print Master with its Graphic Grabber. Also includes a Calendar, Icon Editor, Black Jack, geoDex/geoMerge and will run in 40/80 columns.
CMT 39.95

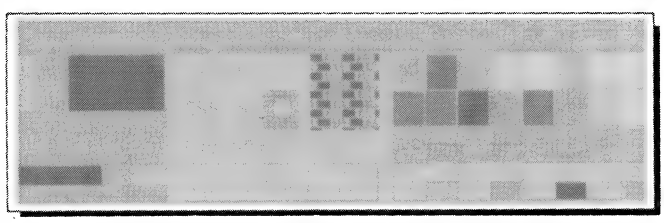
Geos Font Pack Plus 128
This is a collection of 53 fonts for use with GEOS applications and will run in both 40/80 column mode.
CMT 39.95

Geos Font Pack 1 64
A collection of 20 more fonts for use with GEOS, in various shapes and sizes.
CMT 39.96

Geos Int'l Font Pack 64/128
25 fonts for use with GEOS, GEOS 128, GeoWrite Workshop, GeoWrite Workshop 128 and GeoPublish. Supports Spanish, Danish, French, German, Swiss, Swedish, Italian and English (U.K. and U.S.)
CMT 39.95

GEOS Upgrade
Upgrade to GEOS on Disk Magazine Suite 64 Number 12
PRI 0.00

Geos Writers Pack 64
Pack includes GEOS 64 V1.3, GeoWrite, GeoSpell, GeoDex Desk Pack 1 & Font Pack 1
CMT 149.00



Masterpiece

Geospell
Locate and correct words in GeoWrite documents. Check the entire file or only part of the file. Includes a 28,000 plus word GeoDictionary that you can update and edit, and GeoFont with font sizes up to 48 point.
CMT 39.95

Geowrite 128
Menu driven via drop down menus and pointer controlled by joystick or mouse. Supports multiple drives, i.e. 1541, 1571, and 1581 and also RAM expansion. Full WYSIWYG.
CMT 79.95

Geowrite 64
Menu driven by drop down menus. Pointer control via joystick or mouse. Supports multiple drives.
CMT 59.95

Graphics

Animation Station
Graphics Pad.
CMT 139.00

Art Gallery I & II - Printmaster
CMT 49.95

Art Gallery II - Printmaster
CMT 39.95

Blazing Paddles
Graphics program complete with Lightpen, draw onto the screen itself. Easy to use, ideal for children
CMT 44.95

Clip Art Collection Volume 1
Allows you to expand the capabilities of The Newsroom with art for any occasion
DFL 44.95

Clip Art Collection Volume 3
Sports and recreation clipart for The Newsroom.
DFL 44.95

Clip Art Collection Volume 2
Business and occupations clipart for The Newsroom.
DFL 44.95

Doodle
Hi-res only rawing package. Lots of on-screen help and semi-menu driven. Pictures may be printed.
CMT 59.95

Flexidraw 5.5
Create professional quality graphics using data entry device of your choice. Supports a light pen, koala pad joystick and mouse. Input devices sold separately
CMT 59.95

Flexidraw Graphics Galleria I
Series of clip art and illustrations which support both Flexidraw and Doodle formats or can be used with Graphics Integrator 2 to convert to Print Shop etc. Individual theme disks.
CMT 49.95

Flexidraw Graphics Galleria II
Individual theme disk to support Flexidraw or Doodle formats. Themes include Borders and Signs, Holiday Themes, Maps of the World, Clip Art Potpourri I & II, with new releases Animals, Futuristic Encounters.
CMT 49.95

Flexifont
Icon and font generating program for use with Flexidraw. Font Capture Program also included.
CMT 49.95

Graphics Expander Volume 1
For use with The Print Shop and Printmaster. More than 300 new graphics and powerful drawing and editing tools to combine/modify/create graphics. Turn hi-res pictures into usable graphics - Print Shop/Printmaster
DFL 54.95

Graphics Utility
CMT 65.90

Lightpen
Inkwell 184C. Provides easy to use, natural way of entering data that adults and children can quickly master. Demonstration software and technical data is included.
CMT 119.00

Masterpiece

As well as standard graphic features you can zoom, move, copy scale, rotate and twist/fold pictures in 3D Includes a comprehensive manual. Control the pictures you produce from BASIC to add to your programs.
CMT 49.95

Print Power
Similar to Print Master and Print Shop.
PAC 49.95

Sketchpad 128
80 Column drawing system for the 128. Features include smooth, freehand drawing; lines, boxes, rays, circles and arcs; 640 x 200 res drawing screen; shaded fill patterns; fonts, clipart; full printer support, etc.
BRI 39.00

Slide Show 1 & 2
Various pictures.
PRI 8.00

Slideshow One
PRI 8.00

Slideshow Two
PRI 8.00

The Artist
Electronic painting set to create and print colourful art. Includes sprite designer.
PAC 19.95

The Graphics Integrator
For use with Animation Station, Flexidraw, GEOS, Newsroom, Doodle, Printshop, Printmaster, Cadpak 64, Blazing Paddles and Billboard Maker. Create slideshows or use pictures in Paperclip.
CMT 49.95

The Graphics Magician Junior
Ideal for someone who does not need the programming features of Graphics Magician Painter/Animator, or 3D text options of The Complete Graphics System.
DFL 39.95

The Graphics Magician
A painter and animator with a full palette of colours. Includes a mixing feature allowing over 70 blends, 8 different brushes, text entry, and 6 types of moves that the artist can use to create animation.
CMT 19.95

The Print Shop Graphics Library #2
This disk includes symbols for hobbies, occupations, travel, music and health, and much more.
DFL 39.00

The Print Shop Graphics Library #3
This all-purpose disk provides over 100 new graphics including zoo animals, business and international symbols, and the different seasons.
DFL 39.00

The Printshop Graphics Holiday Disk
Holiday graphics including 10 new typefaces, 14 border and 12 full panel designs.
DFL 39.00

Hardware

Accelerator Drives

MIC $199.00

Azimuth 3000 Datasette Alignment Tape
Re-align your cassette deck simply by following the step by step picture guide. All software, instructions and tools are supplied in the kit as well as the game Joe Blade.
OZI/CMT 26.95

C64 Kernal
HPD 9.50

C64/128 RF Cable 3m
CMT 5.95

C64/128 Serial Cable 3m
CMT 9.95

Cartridge Port Expander
4 Slot.
CMT 59.95

Cassette Head Cleaner
ECP 2.95

Datasette Backup Board DCL1
HPD 29.95

Datasette Doctor
Enables servicing of Datasette unit.
HPD 34.50

Datasettes
Reliable datasette for the C64 with Write L.E.D.
PAC 49.95

Disk Drive Alignment Kit 1541/1571
CMT 44.95

Disk Drive Head Clean Kit 5.25"
CMT 19.95

Disk Notcher
Use both sides of disks by making an extra notch. for 5.25" disks
CMT 14.95

Drive Doctor 1541/1571
Allows you to check motor speed, head movement, back stop setting, head alignment and stepper motor hysteresis. for the C64/128 and 1541
HPD 42.95

Excelerator Plus
HPD 299.00

Excelerator/Super DOS Upgrade Chip
HPD 25.00

Expansion Interface
ECP 45.95

Four Slot Cartridge Expander
HPD 54.95

Geoprint Cable/User Port Printer Cable
Speed up printing with this six-foot parallel cable. Connects easily to Commodores with fewer wires and no interface box.
CMT 39.95

Joystick Extension Cable
CMT 9.95

M-1 Mouse
Emulate a joystick in any program and includes graphic software.
PAC 59.95

M-3 Mouse
Emulates a joystick, paddles and a proportional mouse. Includes graphic and utility software. Ideal for use with GEOS or the Final Cartridge III.
PAC 89.95

Modem Adaptor
Including ON/OFF switch. Allows use of Hayes/1670 modems.
CMT 39.95

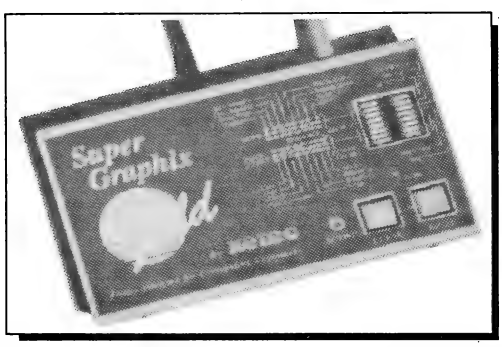
Mouse/Cheese Set
Includes a driver routine for GEOS and comes with its own software.
PAC 129.00

Pactronics Disk Drive
This drive comes with an external power supply, a 12 month warranty and ceramic read/write heads. Also, a Disk Pak is supplied consisting of disk based fast loading/ saving system, organizer software and games.
PAC 329.00

Parallel Cable 1541/1571
From user port to 1541 drive beneath ROM.
HPD 32.95

Parallel Printer Cable 2m
CMT 19.95

Parallel Printer Cable Extender
Female to female.
CMT 35.00



Xetec Super Graphix Gold

Parallel Printer Extension Cable
Male to male.
CMT 29.95

Quickdisc + MK II
MIC 54.95

RS 232 Cable
Male to male.
CMT 29.95

RS 232 Cable
Male to female.
CMT 31.95

RS 232 Interface
Use a standard modem with this interface. Plugs into USER port.
CMT 89.95

Six Inch Video Interface Cable
ECP 21.95

Slimline Conversion Case for C64
CMT 19.95

Star NB/ND/NR/NX-15 Serial Interface
Features include front panel operation, auto paper feed, tractor feed, 30 cps NLQ, draft quality 120 cps, expandable 4KB print buffer.
CMT 199.00

Star NL-10 Centronics Interface
CMT 110.00

Star NL-10 Commodore Interface
CMT 110.00

Star NL-10 RS-232/Serial Interface
CMT 199.00

Telephone Adaptor Plug U.S./Aust.
CMT 4.95

Telephone Extn. Cable U.S./Aust
CMT 4.87

Turbo ROM
Load/save up to 6 times faster than CBM DOS. Full disk copier for multiple copies to a single drive, also a reset switch.
COC 44.00

User Port Extension Cable
CMT 29.95

Userport Expander Card
MIC 33.00

Xetec Super Graphix Gold
This interface has a 32K buffer, and can do a printer dump in 16 sizes and four shades. Inverse printouts are also possible. There are 8 fonts and 9 pitches and proportional printing is also available.
CMT 289.00

Xetec Super Graphix Jnr.
An economical printer interface with NLQ built-in and including 10 printing modes and graphics.
CMT 119.00

Xetec Super Graphix
This enhanced printer interface has NLQ built-in and also includes an 8K buffe14r, 2 downloadable fonts, a reset button and a utility disk with 27 fonts.
CMT 169.00

Integrated

Fleet System 2 Plus
Four applications in one package, including Word Processing, Dictionary, Thesaurus and Database. Includes built-in 80 column preview, WYSIWYG, Pop-up windows, Mail merge, Search/Replace, Horizontal Scrolling.
CMT 59.95

Home Manager
Features word processor, database manager and notepad/ calculator.
PAC 29.95

Kwik Pad
Desktop organiser including database, calculator, diary and memo pad.
PAC16.95

Mini Office II
Combines word processor, database and spreadsheet.
PAC 44.95

Tri Pack
Combination of The Writer, The Filer and The Planner.
PAC 79.95

Vizastar 128
Spreadsheet - 1000 rows, 64 col., 9 worksheet windows. Database - full screen design (up to 9), 8000 char per record. Graphics - use figures from any user defined worksheet cell range. Many graph types.
BRI 69.00

Wordpro 128
80 column word processor with RGB monitor, also includes Filepro 128 database.
PAC 79.95

Joysticks

Challenger Joystick
Features 6 micro switches, auto-fire switch with 3 speed control, 2 fire buttons, 8 directionial positions with built-in stabilising suction cups. No cables, no tangles. Infra Red Joystick.
H&R 59.95

Competition Pro 200X
OZI19.95

Competition Pro 1000
OZI 29.95

Competition Pro 5000 Clear
OZI/CMT 39.95

Competition Pro 5000 Extra
CMT 0.00

Cruiser Joystick
QUE 39.95

DCOM Joystick 400
OZI 14.95

Dynamic Clear Joystick
QUE 49.95

Epyx 500 XJ Joystick
QUE 49.95

I-Controller Suncom joystick.
CMT 39.95

Joystick 203
OZI 29.95

Modern Joystick #2
QUE 1429.95

Modern Joystick #3
QUE 24.00

Modern Joystick #6
QUE 22.00

Modern Joystick #7
QUE 24.00

Modern Joystick #8
QUE 20.00

Pro 5000 with Micro Switch
OZI 39.95

Quickshot MK I
HPD 12.95

Quickshot MK II
HPD 24.95

Quickshot MK II Turbo
HPD/CMT 44.95

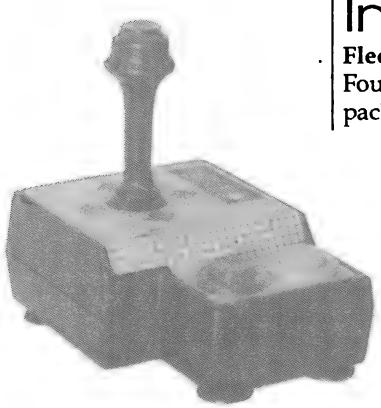
Rapid Fire Adaptor 64/128
CMT 44.95

Starcursor Joystick
Features include a easy grip handle with 10mm shaft, 3 push buttons which can be used with any game, easily adjustable 4 and 8 way action slide allows for exact game control, as well as a button common switch.
MUL 49.00

Terminator "The Final Joystick"
OZI 39.95

Wico Bat Handle
CMT 49.95

Wico Boss
CMT 39.95



Starcursor Joystick

Zoomer Joystick/Yoke

Wico Ergostick
CMT 49.95

Wico Super 3-Way
CMT 69.95

Wico Trackball
CMT 99.00

Zipstick Joystick Super-Pro (black)
DOL 39.95

Zipstick Joystick Super-Pro (black)- BBC
DOL 45.00

Zipstick Joystick Crystal (Clear)
DOL 39.95

Zipstick Joystick Elite (black)
DOL 29.95

Zoomer Joysticks
OZI 0.00

Zoomer Yoke/Wheel Controller
CMT 139.00

Languages

ADA
Structured language development.
CMT 1559.95

Assembler Monitor
Features full 6510 Macro Assembler to support user-defined macros and defines floating point constrains in ML programs. The Monitor includes standard features and switch memory banks, single step execution, & more
CMT 59.95

BASIC 8 128
Advanced programming environment for 128D in 80 column mode. Includes commands for windows, fonts, patterns and brushes. Complete with 200 page manual, 2 disks, runtime library, demonstrations, 3 BASIC 8 programs.
BRI 48.00

BASIC 8 Toolkit 128
Collection of utilities for use with BASIC 8. Also allows you to convert Print Shop graphics into BASIC 8 graphic file. Even add colour with the colour option.
BRI 29.00

BASIC Compiler 128
Converts programs into machine language or speed code.
CMT 89.95

BASIC Compiler 64
Make your BASIC programs run faster by converting them into machine language or speed code, including those written in Simon's Basic, Video Basic and more.
CMT 69.95

Becker BASIC
Program in BASIC to run under GEOS. Adds more than 170 new commands to BASIC.
PAC 59.95

Cobol 128
Programming language featuring Editor, Interpreter and Symbolic Debugger, English-like commands, powerful programming development tool. A comprehensive manual is included as are sample programs and exercises.
CMT 69.95

Forth
CMT 59.95

Fortran
Comes complete with own compiler to produce fast, runable and saveable programs.
PAC 69.95

Super C 128
This easy-to-use package helps you to learn C or develop new software on your computer. Includes full-screen editor, compiler, linker and handbook, as well as libraries for graphics and advanced math.
CMT 89.95

Super C 64
Learn C on your computer. Produces 6502 machine code and is faster than BASIC. A full-screen editor is included which features search/replace and block operations. Also a compiler, liner and handbook included.
CMT 89.95

Super Pascal 128
A full implementation of standard Pascal including features such as such and replace and the ability to add machine language routines with the built-in assembler.
CMT 89.95

Super Pascal 64
A full implementation of standard Pascal. Editor features include search and replace. Allows the addition of machine language routings with built-in assembler. C64 version has high-speed DOS for faster access.
CMT 89.95

Magazines

Games Machine (U.K.)
All formats.
CMT 8.95

INFO
Commodore/Amiga
CMT 10.95

Suite 64
A monthly double-sided magazine on a disk. Contains education, utility, business and entertainment programs along with some editorial.
PRI 12.95

Suite 64 - Issue 14
PRI12.00

Transactor 64
Canada
CMT 9.95

ZZAP 64 (UK)
Commodore/Amiga
CMT 7.95

Music

Dr. T's 4-Op Deluxe
CMT119.00

Dr. T's CZ Rider
CMT 119.00

Dr. T's KCS 128
CMT 249.00

Dr. T's KCS C64
CMT 179.00

Dr. T's Lexicon PCM
CMT119.00

Dr. T's Oberheim
CMT119.00

Guitar Wizard
CMT 39.95

Instant Music
ECP 31.95

Music Construction Set
ECP 22.95

Music Writer
Enables you to write compositions with multiple voices and hear and see notes as they are entered. Wordprocessing style entry, prints compositions, stores up to 70 music staffs, includes tone shaping options.
MSP 19.95

Stereo Sound Synth
HPD 0.00

Productivity

B/Graph
ECP 31.95

Chartpack 128
CMT 59.95

Chartpack 64
CMT 59.95

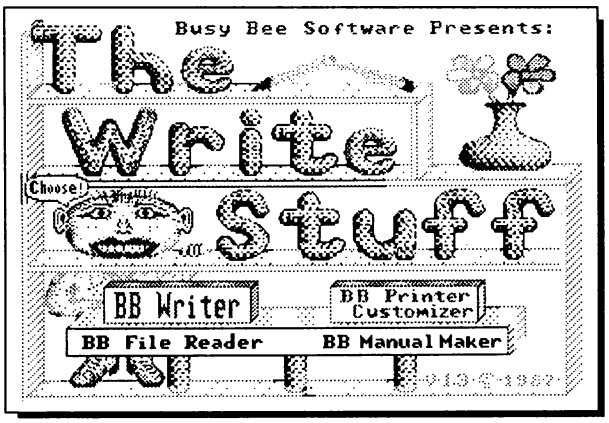
Colorez 128
A utility to transform 40 column graphics pictures into hi-res, 16 colour pictures on 80 column RGB screen. Includes Vic type display, Icon driven, routines in ML operated with SYS commands. Supports BASIC 8 pictures.
CMT/BRI 24.95

Consultant
ECP 31.95

Cut and Paste
ECP 22.95

Digitalker 128
Enables you to add digitized speech to BASIC programs. Keep dozens of numbers, letters and phrases in memory. Digitalker comes with Talk routines, over 500K of Clip Sound (A-Z, numbers, etc.), and technical information.
BRI 39.00

Homepak
ECP 31.95



The Write Stuff

Introduction to Programming Parts 1 & 2
Helps the newcomer to learn programming in BASIC by covering topics such as variables, screen handling, number handling and more.
PAC 29.95

Master
Program development
CMT 59.95

S'more Basic Enhancem
ECP 54.95

Sideways
CMT 29.95

Tas 128
Technical analysis system.
CMT 89.95

Tas 64
Technical analysis system
CMT 59.95

Voicemaster Junior
Train your computer to recognize your voice and play-back recorded speech.
PAC 99.95

Spreadsheets

Kwik Calc
Perfect for beginners, with 3,500 active cells.
PAC 16.95

Swift Spreadsheet
Spreadsheet for the C64.
PAC 59.95

The Planner
Flexible spreadsheet with easy to follow menu structure.
PAC 34.95

Value Calc
Spreadsheet ideal for home or small business, includes 3 templates.
PAC 19.95

Tutorials

Type!
Type! displays detailed graphs of perfomance to show where the common errors are and how to improve. Create custom drills to help you learn, and print out daily progress reports. Includes Type!Athlon typing game.
DFL 29.95

Typing Tutor IV
Teaches touch typing.
OZI 44.95

Utilities

1541/1571 Drive Alignment
Designed for C64/SX64/ 128/128D (either 64/128 mode). Also, it will accurately evaluate 1541/1541C/1541-II/ 1571/SX64 drive. The System comes complete with manual program disk, calibration disk and alignment procedure
BRI 0.00

Best DOS Utilities
Selection of various DOS utilities such as T&S Editor, directory sorting, file recover, machine language monitors, and many more.
PRI 19.95

Big Blue Reader
Enables ASCII files to be transferred to and from MS-DOS. Requires a 1571/1581 disk drive.
PRI 54.95

Blitz Compiler
Enables you to speed up your BASIC programs, up to 2000% faster. Versions available for the C64 and also the 128.
PAC 39.95

Datasette Alignment Kit
CMT 24.95

Datasette Head Cleaning Kit
CMT 7.50

Decompiler (Blitz)
Converts a compiled program back to BASIC statements.
HPD 29.95

Disk Disector
Disk Archiving program
MIC 54.95

Disk Master
MIC 43.95

Dolphin Copy
For use with Dolphin Dos.
MIC 33.00

Dolphin DOS
Two new ROMs plus cable. Provide 15 times speed increase.
MIC 169.00

Double Image II
An Australian made disk and file copy system.
HPD 54.95

Expert 4.1 Integrated Disk System
Full screen viewer (including sprites), fast save of backup, full memory fast load/save, real time picture editor, load, save and edit character sets, unique file view command, and much more.
HPD 29.95

Expert V3.2 System Disk
HPD 24.95

Expert V3.2 Utility Disk
HPD 24.95

Freeze Frame V2.0 Utility Disk
MIC 24.95

Freeze Machine B3.0 Utility Disk
MIC 24.95

Icon Factory
Menu driven graphics utility to load, manipulate, combine and save computer images from graphics programs, and will support GEOS, Print Shop, Print Master, Koala Doodle, Flexidraw, Newsroom (and more), formats.
BRI 160.00

Jiffy DOS 128
Available for C128D (speeds up 64/128 modes), also for 1541, 1541C, 1541 II, 1571, 1581, FSD 1&2, MSD SD-1&2, and more. System includes ROMS for computer & 1 drive, stock/JiffyDOS switching system, and instructions.
HPD 0.00

Jiffy DOS C64
Ultra fast disk operating system for the C64, SX64 and C128. Speeds up all disk operations, uses no ports, memory or any extra cabling. 100% compatible with all software/hardware. Easy do-it-yourself installation.
HPD 89.00

Kwik Load
Disk utilities package.
PAC 16.95

Kwik Utility
Disk based, fast loading DOS utilities.
PAC 16.95

MPS 802 Publisher Upgrade
PRI 6.00

MPS 802 Publisher V2
Provides graphic support for 1526 & MPS-802 Printers. Prints Doodle, Printshop, Printmaster graphics. Provides NLQ mode, Banners plus more. Includes Docs.
PRI 24.95

Super 81 Utilities 128/1581
Complete utilities package for 1581 disk drive and 128 Will load on 1581 or 1571 drive, includes a 1581 disk editor, a drive monitor, and a RAM writer. Also performs many CP/M and MS-DOS utility functions.
BRI 49.00

Super Disk Utilities 128
A collection of utilities for the

1571 and 128 grouped into 7 functions: DOS utilities, disk copying, file copying, CP/M utilites, disk editor, drive monitor and RAM writer.
BRI 49.00

Super Printing Utility
ECP 31.95

Word processing

Bank Street Writer
A wordprocessor simple enough for children and at the same time sophisticated enough for adults. Write, revise, correct, erase and unerase, or rearrange your words instantly. Backup disk and manual included.
DFL 79.95

Fontmaster 128
Includes over 50 fonts and utilises the double height feature of some printers to print headlines or titles. Fontmaster will arrange text around graphics, and has a 100,00 spell checker, macro instructions, and more.
CMT 89.95

Fontmaster II
This powerful wordprcessor for the 64 comes with 30 fonts, 65 commands, a font creator, data merging, super and subscripting and italicizing.
CMT 79.95

Kwik Write
Menu driven, full featured word processor.
PAC 24.95

P.W. Dictionary
QUE 29.95

Paperclip
ECP 31.95

Paperclip II
ECP 94.95

Paperclip III
Post-formatting wordprocessor for 64/128. Four way scrolling in video preview. Allows you to define,move, sort, delete and add columns. Automatic reformatting of edit scren after addition/deletion.
ECP 94.95

Paperclip Publisher
ECP 45.95

Paperclip/Spellpak
ECP 1731.95

Pocket Writer II
Menu and command driven with on-screen help, true WYSIWYG. Series II versions use RAM expansion if it is available. Full set of formatting, text enhancement and cursor controls.
QUE 69.95

Super Disk Librarian 64
CMT 34.95

Super Disk Librarian 128
CMT 34.95

Superscript 128
A post-formatting, menu-driven. EasyScript's big brother. The menu system in enhanced by a parallel command system to increase speed. Alpha-numeric keys can be programmed to execute function/s.
CMT 49.95

Superscript 64
CMT 49.95

Tasword
Includes 80 character per line display, WYSIWYG, and on-screen formatting, comprehensive help commands, full cursor movement control, delete, insert, tab, search/replace, program customization to dot matrix.
DOL 59.95

The Write Stuff
WYSIWYG preview, up to 64K divided into 10 work areas. Also includes built-in outline generator, file transfer for other wordprocessing documents, supports 1750/1700 RAM expanders, alarm clock, and much more.
BRI 49.00

The Writer
With pull down menus and 50,000 word spelling checker.
PAC 39.95

Value Word
Word processor for home use which includes 40,000 word spell checker, punctuation guide, letter formats and address and salutation guide.
PAC 29.95

Vizawrite Classic
Vizawrite includes full screen and document scrolling, and allows merging of documents from Easy Script, Paper Clip and Superscript. Multi-line headings and footings with automatic page numbering.
BRI 59.00

Word Publisher
GEOS wordprocessing with more features than Geowrite and 100,00 word spelling checker.
PAC 69.95

Word Style
Easy to learn word processing software
PAC 44.95

Word Pro
Includes turbo load/save and spellchecker.
PAC 79.95

Word Pro 128 with File Pro
80 column word processor for the C128 with RGB monitor. Includes File Pro 128 database program.
PAC ❑

KEY TO DISTRIBUTORS MENTIONED IN THE SOFTWARE GUIDE

BRI Briwall Australia, PO Box 9, Rivett, ACT 2611. (062) 880131

CBM Commodore Computers
67 Mars Road, Lane Cove 2066
(02) 427 4888

CMT Computermate Products
9 High Street, Mt. Kuring-Gai, NSW 2080. (02) 457 8118 FAX: (02) 457 8739

COC Cockroach Software, PO Box 1154, Southport 4215 (075) 916188.

DFL Dataflow Computer Services, 134 Barcom Ave
Rushcutters Bay 2011
(02) 331 6153

DOL Dolphin Computers,
7 Waltham St, Artarmon.
(02) 438 4933

ECP Entertainment & Computer Products, 4/18 Lawrence Drive
Nerang 4211
(075) 96 3488 Fax: 96 3512

HES Home Entertainment SuppliersP/L
Unit 1/128 Bonds Rd
Riverwood 2210
(02) 533 3679

HPD Hardware Peripheral Distributors
7/100 Hewittson Road
Elizabeth West SA 5113
(08) 252 3300 FAX: (08) 252 4755

H&R H & R Wholesale Pt/L
3 Marsh Street
Granville NSW 2142
(02) 897 1044 FAX: (02) 897 1223

MIC Micro Accessories of SA
Unit 8 Hewittson Rd, Elizabeth West, SA 5113. (08) 287 0191

MSP Mindscape International
5 - 6 Gladstone Road
Castle Hill NSW 2154
(02) 899 2277 FAX (02) 899 2348

MUL Multicoin Amusements P/L
17 Wrights Place
Labrador 4215
(075) 37 5711 Fax: (075) 37 3743

OZI Ozi Soft Pty Ltd
3rd Floor, 55A Mentmore Ave
Rosebery 2018
(02) 313 6444

PAC Pactronics Pty Ltd
98 Carnarvon St, Silverwater
(02) 748 4700

PRI Prime Artifax
9 Augustine St, Hunters Hill 2110
(02) 817 0011

QUE Questor (Imagineering)
Mailbag 9, Rosebery 2018
(02) 662 7944

SAT Satchel Software, Angle Park Computing Centre, Cowan St, Angle Park, SA 5010. (08) 243 5559.

Bulletin Boards of Australia

List published by the Australian BBS Registry - Release 8911

Access information

Mem: Membership required for full access.
Reg: Registration required.
VA: Visitor Access available to most functions.
LVA: Limited Visitor Access available.
Public: Public board, open to all.
File Server: FIDOnet File Server (see below)

Most systems will allow you on to let you know their requirements, the registry specifically does not store exact details of what each system wants for access as the requirements change too often.

Baud information

V21	300 Tx /300 Rx CCITT
V22	1200 Tx /1200 Rx CCITT
V22bis	2400 Tx /2400 Rx CCITT
V23	1200 Tx /75 Rx CCITT
V23ORG	75 Tx /1200 Rx CCITT V23 set to originate
V32	9600 Tx /9600 Rx CCITT
B103	300 Tx /300 Rx Bell (US)
B212	1200 Tx /1200 Rx Bell (US)
PEP	9600+ PEP Protocol Modem
HST	9600+ HST Courier Modem

Unless otherwise shown all systems are 8 bit bytes, 1 stop bit, no parity.

FIDOnet

● FIDOnet is a network of bulletin boards that exchange mail and news. Systems accessible via FIDOnet have their zone, net & node numbers listed. For more information logon to a Fido system, most have full details of the network online for browsing by users.

The registry has a special area within FIDOnet called BBS NEWS. The latest news and changes are always in this area.

File Server

● This is a system that does not have callers as such, what they have are files for downloading using FIDOnet (Binkley, D'Bridge, Front Door, Opus, Seadog, etc) "File Request" processing.

General Information

● The Australian Bulletin Board Registry was formed to attempt to resolve the age old problem of obsolete Bulletin Board lists. Part of the philosophy of the registry is to make it worthwhile for all operators to list their system with the registry and to make use of the listings.

One method of making the listings attractive is that the issue of the lists is totally regular, at the beginning of each month the registry publishes a new version of the listing. This listing is marked with the creation date and time and is also given a release number (this release number is normally the year and month of issue, the January 1987 list would be given a release number of 8701).

The idea of providing the files is that they are available to anyone; sure there is a copyright notice, but that is to protect the viability of the lists, not to stop people using them.

Most Australian Fido systems carry the current list, this is because the Network Coordinators of Fido support the idea of up-to-date listings. This does not mean the lists are Fido only, they are FREE TO ANYONE. Look for the listings on your favourite system, if they are not there ask your sysop to get them for you, otherwise call the state coordinator's bulletin board or try your nearest Fido system. If all else fails dial (02) 628-5222 and get it from Rodney Creer, Australian BBS Coordinator.

Please help eradicate out of date listings, use the registry files, and if you find a system that is not listed advise the registry either by post, through one of the coordinators, on the Fido conference BBS NEWS, or by leaving a message to sysop on the Prophet. ❑

ACT

System: Ghost of Opus
Sysop: *Scott Furry*
Phone: (062) 58-7160
FIDOnet: 3:620/240
Baud: V21 V22 V22bis B103 B212
Access: Public
Computer: IBM XT Clone
Info: General interest/ nontechnical. Files available for CBM, IBM Machines Many online games. Many national and international echos

System: MICSIG Fido
Phone: (062) 85-1026
Baud: V21 V22 V22bis V23
Access: Public
BBSoftware: Fido

System: PC Exchange Opus
Sysop: *Phil Harding*
Phone: (062) 58-1406
FIDOnet: 3:620/244
Baud: V21 V22 V22bis V23
Access: Mem LVA

System: PCUG Bulletin Board
Sysop: *Alan Salmon*
Phone: (062) 59-1244
FIDOnet: 3:620/243
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM AT
Info: Access free to members of PCUG. $20pa incl monthly newsletter

System: Percom BBS
Sysop: *Alex Reutt*
Phone: (062) 81-3119
FIDOnet: 3:620/247.0
Baud: V21 V22
Access: Public
Hours: Daily: 2100 - 0700
Computer: IBM XT Clone
Info: Online Games

System: The Capital BBS (CUG [ACT] Inc.)
Sysop: *Basil Chupin*
Phone: (062) 81-0847
FIDOnet: 3:620/241
Baud: V21 V22 V22bis V23
Access: Mem LVA

New South Wales

System: 1st Xanadu
Sysop: *Bob Jones*
Phone: (02) 622-9591
FIDOnet: 3:713/608
Baud: V21 V22 V22bis
Access: Public
Hours: Weekdays: 2200 - 1700 Weekends: 2200 - 0900
Computer: ASI 009

System: 2000 and Beyond QuickBBS
Sysop: *Greg Kuhnert*
Phone: (02) 544-7123
FIDOnet: 3:712/513
Baud: V21 V22 V22bis V23 B212
Access: Mem Reg LVA
Computer: IBM XT Clone
Info: Heaps of QuickBBS support files for sysops, as well as games, utilities, and other files for members. Also, echomail galore, and lots of fun for all.

System: 500cc Formula One Amiga BBS
Sysop: *Dino*
Phone: (02) 550-6858
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg
Computer: Amiga 2000

System: A Southern Rendezvous
Sysop: *Kevin Withnall*
Phone: (042) 26-3382
FIDOnet: 3:712/206
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM AT Clone
Info: BBS thats mainly for fun! 32 meg of files and heaps of echomail available. The bbs is directed at local people in the Illawarra district.

System: ABCOM-dataLINK
Sysop: *Ben Sharif*
Phone: (047) 36-4165
FIDOnet: 3:713/304
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: IBM AT Clone

System: ACE (NSW) PRACS
Sysop: *Larry O'Keefe*
Phone: (02) 529-2059
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg LVA
Computer: Atari
Info: Atari ST, 400, 800, XL, and XE users. Atari Computer Enthusiasts Club BBS.

System: Aftermath BBS
Sysop: *Ron & Andrew Clark*
Phone: (02) 872-5520
FIDOnet: 3:711/804
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem VA
Computer: IBM AT Clone

System: AmigaMan
Sysop: *Ron Carruthers*
Phone: (047) 58-8006
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: Amiga 1000

System: Amstrad ABBS
Sysop: *Riccay Schmahl*
Phone: (02) 981-2966
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM 386 Clone

System: Apolloline Australia BBS
Sysop: *Richard Heppell*
Phone: (02) 869-8349
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: Macintosh

System: Apple Users Group - Apple // BBS
Sysop: *Cameron Brawn*
Phone: (02) 449-7798
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Apple //e

System: Arrow KBBS
Sysop: *Mark Sinclair*
Phone: (02) 451-2660
Baud: V21 V22 V23 B103 B212
Access: Mem Reg VA
Computer: C-64
Info: Remote games are our specialty.

System: Atari ST Users Club
Sysop: *Andrew Brown*
Phone: (02) 709-4038
Baud: V21 V22 V22bis V23
Access: Public
Hours: Weekdays: 1900 - 0700
Weekends: 24 Hours
Computer: IBM PS/2

System: Atlantis
Sysop: *Brett Selwood & Mark Farnan*
Phone: (02) 534-6944
FIDOnet: 3:712/504
Baud: V21 V22 V22bis V23 PEP
Access: Mem Reg LVA
Computer: IBM AT Clone
Info: Specialising in graphics & programming, and RPG's

System: AUG*MAC*BBS
Sysop: *Richard Kempe*
Phone: (02) 439-6142
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Macintosh
Info: Wide range of MAC files for downloading and message areas for the MAC user.

System: AUGUR TBBS
Sysop: *Mark James*
Phone: (02) 311-3052
FIDOnet: 3:712/302
Baud: V22 V22bis V23
Access: Reg VA
Computer: IBM XT Clone

System: Australian Pick User's BBS
Sysop: *Kurt Johannessen*
Phone: (02) 631-8603
FIDOnet: 3:713/610
Baud: V21 V22 V22bis HST
Access: Reg VA
Computer: IBM XT Clone

System: Avalon BBS
Sysop: *Lance Lyon*
Phone: (02) 319-1793
FIDOnet: 3:712/313
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone
Info: Alternative religous areas. Sydney paranet board

System: Beauford BBS
Sysop: *Roger Cooper*
Phone: (047) 58-6542
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone

System: Bill's BBS
Sysop: *Bill Mastro*
Phone: (049) 45-9166
Baud: V21 V22 V23
Access: Reg
Computer: Apple //e Clone

System: Bit-Board
Sysop: *John Hamill*
Phone: (02) 411-6375
FIDOnet: 3:711/404
Baud: V21 V22 V22bis V23
Access: Public
Computer: Everex AT

System: Blackboard BBS
Sysop: *Will Black & Shane Andersen*
Phone: (02) 525-6970
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: IBM XT Clone

System: Books BBS
Sysop: *Jon Ruwolt & Chris Ruwoldt*
Phone: (02) 281-4791
Baud: V21 V22 V22bis V23
Computer: IBM XT Clone

System: Buzzards Haven
Sysop: *The Buzzard*
Phone: (067) 72-1438
Baud: V21 V22 V22bis V23
Access: LVA
Computer: Apple //e
Info: Supports Apple //+,e,GS IBMs and Clones, Amigas

System: Cavity
Sysop: *Don Cunningham*
Phone: (02) 606-9687
FIDOnet: 3:713/611
Baud: V21 V22 V22bis
Access: Mem Reg VA
Computer: Profound XT Turbo
DOS: MS DOS
BBSoftware: QuickBBS

System: Classic BBS
Sysop: *Tony Edward*
Phone: (02) 489-7997
FIDOnet: 3:711/505
Baud: V21 V22 V22bis B103 B212
Access: Public
Computer: IBM XT
Info: Echomail and files for programmers. Our specialties are C, Xenix,/Unix, and LANs.

System: Club Amiga BBS
Sysop: *Ross Kellaway*
Phone: (02) 521-6338
FIDOnet: 3:712/511
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM XT Clone

System: Club Commodore
Status: *** Offline ***

System: Club Mac Remote Maccess System
Sysop: *Ian MacPherson*
Phone: (02) 906-3455
Baud: V22 V22bis V23
Access: Mem LVA
Computer: Macintosh
Info: Additional phone line (02) 906-3494

System: Club-80 RTRS
Sysop: *Michael Cooper*
Phone: (02) 332-2494
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem VA
Computer: TRS80 Model 4

System: Coastal BBS
Sysop: *Kevin Mann*
Phone: (043) 23-2275
FIDOnet: 3:711/430
Baud: V22 V22bis PEP
Access: Public
Computer: IBM AT Clone
Info: All files suit IBM's and clones only.

System: Coastal Communications
Sysop: *Chris Patten*
Phone: (02) 977-6869
FIDOnet: 3:714/906
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM AT Clone

System: Comet C-64 BBS
Sysop: *Eric Davis*
Phone: (02) 599-7342
Baud: V21 V23
Access: Mem VA
Computer: C-64
Note: Requires UltraTerm or Palette on C-64

System: Commodore Amiga BBS
Sysop: *Paul Bourke & Graham Lee*
Phone: (02) 664-2334
FIDOnet: 3:712/629
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg VA
Computer: IBM XT Clone
Info: This BBS is dedicated to the support of the Amiga, C64 and C128 micro computers, and their users.

System: Commodore Pursuit TBBS
Sysop: *Warren Hillsdon*
Phone: (02) 522-9144
FIDOnet: 3:712/512
Baud: V21 V22 V22bis V23 B212
Access: Reg LVA
Computer: IBM AT Clone

System: Communication 2000
Sysop: *Ian Mason*
Phone: (049) 59-2664
FIDOnet: 3:711/495
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT

System: Compax Computers
Sysop: *Alex Sardo*
Phone: (02) 890-1059
FIDOnet: 3:713/601
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM XT Clone
Info: IBM and Atari Software Support

System: Computrol
Sysop: *Bob Spence*
Phone: (02) 489-6848
GTnet: 302/004
Baud: V22 V22bis B212
Access: Mem Reg VA
Computer: IBM AT Clone

System: Conquest BBS
Sysop: *Andrew Fryer*

Phone: (02) 899-4093
Baud: V21 V22 V23
Access: Public
Computer: C-64

System: Daylight BBS
Sysop: *The Gollywog*
Phone: (02) 520-4988
Baud: V21 V22 V22bis V23 B212
Access: Reg VA
Hours: Weekdays: 0800 - 1630
Computer: IBM XT Clone
Info: Online games on a rapidly growing board. Friendly user base, and a very informal atmosphere.

System: DefCom BBS
Sysop: *Jere Lawrence*
Phone: (02) 764-3949
Baud: V21 V22 V22bis
Access: Public
Hours: Daily: 2100 - 0800
Computer: Atari 1040ST
Info: A board for fun & good times! If you are sick of hearing people talk about the size of their "DOS" come here and talk about something really funny!

System: Delta Net
Sysop: *Geoff Arthur*
Phone: (02) 457-8281
FIDOnet: 3:711/415
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg LVA
Computer: IBM 386 Clone
Info: Online weather fax's, Online games, IBM & Apple file areas.

System: Dick Smith Electronics BBS
Phone: (02) 887-2276
Baud: V21 V22
Access: Reg
Computer: Multitech PC-500

System: Display Systems Australia BBS
Sysop: *Michael Butler*
Phone: (02) 690-1450
FIDOnet: 3:712/515
Baud: V21 V22 V22bis B103 B212 PEP
Access: Reg VA
Computer: IBM PC/XT Clone
Info: C Programming & Development Compilers & Language Development tools.

System: Down Under KBBS
Sysop: *Glen Myles*
Phone: (02) 674-6647
Baud: V21
Access: Mem VA
Computer: C-64
BBSoftware: KBBS

System: Eagle One BBS
Sysop: *Terry Harvey*
Phone: (02) 745-3190
FIDOnet: 3:712/704
Baud: V21 V22 V22bis PEP
Access: Mem Reg VA
Computer: IBM AT Clone

System: Eagle's Nest BBS
Sysop: *Philip Dean*
Phone: (02) 451-0535
FIDOnet: 3:714/409
Baud: V22 V22bis B103 B212
Access: Mem Reg VA
Computer: IBM AT Clone
Info: Caters mainly for Commodore computers, with 7 amiga echos as well as echos for the C-64 and C-128. Also, download and Magazine sections for these machines.

System: Easy Access GBBS
Sysop: *The Virus*
Phone: (046) 28-5114
Baud: V21 V22 V22bis V23
Computer: Apple //e

System: Eden
Sysop: *David Luong*
Phone: (02) 699-9342
FIDOnet: 3:712/631
Baud: V22 V22bis B212
Access: Reg VA
Computer: IBM AT Clone

System: Food For Thought
Sysop: *Steve Thompson*
Phone: (02) 683-6093
GTnet: 302/006
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone

System: Formula One Amiga BBS
Note: Now Called
500cc Formula One Amiga BBS
(See Pg 86)

System: GALEN BBS
Sysop: *Paul Purvis*
Phone: (02) 680-4897
FIDOnet: 3:713/609
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM AT Clone

System: Helping Hand
Sysop: *Dave Hatch*
Phone: (02) 872-3571
FIDOnet: 3:711/807
Baud: V22 V22bis PEP
Access: Reg VA
Computer: AT Clone

System: HighTech
Sysop: *Ross Wheeler*
Phone: (060) 25-1813
FIDOnet: 3:712/201
Baud: V21 V22 V22bis V23 B103 B212 PEP
Access: Reg LVA
Computer: IBM AT Clone
Info: 147.575 Mhz VK2DGY 1200 bps Amateur Packet Radio

System: Home Computing
Sysop: *David Woodbridge*
Phone: (02) 455-1806
GTnet: 302/011
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: IBM XT Clone
Info: Wide range of Fido and GTnet conferencs.

System: HomeGrown QuickBBS
Sysop: *David Heaps*
Phone: (02) 502-4307
FIDOnet: 3:712/214
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Computer: IBM XT Clone
Info: Heaps of QuickBBS utilities (as well as other files), Online games, and a friendly sysop.

System: Hot-Line
Sysop: *Nick Harvey*
Phone: (02) 488-9375
Baud: V21 V22 V22bis
Access: Public
Computer: IBM XT Clone

System: Hunter Schools' BBS
Sysop: *Matthew Taylor*
Phone: (049) 69-2851
FIDOnet: 3:711/493
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone
Info: A helpline containing user questions and detailed blow by blow solution to some of the popular adventures.

System: Illawarra BBS
Sysop: *John Simon*
Phone: (042) 61-8230
FIDOnet: 3:712/518
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: XT Clone

System: Integra TEX
Sysop: *Kevin Leong*
Phone: (02) 746-1109
FIDOnet: 3:712/703
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone

System: Inter City BBS
Sysop: *Jodi Jackson*
Phone: (02) 319-0925
FIDOnet: 3:712/208
Baud: V21 V22 V22bis
Access: Reg LVA
Computer: IBM XT Clone

System: Intersoft BBS
Sysop: *Craig Heading*
Phone: (02) 476-2391
FIDOnet: 3:711/411
Baud: V22 V22bis V32
Access: Mem Reg LVA
Computer: Tandy 3000
DOS: MS DOS
BBSoftware: Opus

System: K.K.K BBS
Sysop: *Jim Lynch*
Phone: (02) 418-6005
FIDOnet: 3:711/416
Baud: V21 V22 V22bis V23
Access: Reg

System: Kangaroo Korner
Sysop: *Stephen de Plater*
Phone: (02) 977-2013
GTnet: 302/001
Baud: V21 V22 V22bis B103 B212 HST
Access: Reg LVA
Computer: IBM 386 Clone
Info: Support for Gt Power terminal program, and BBS System. FidoNet <> Gt Net gate.

System: LOCAL BBS
Sysop: *Tony Dodds*
Phone: (049) 62-1768
FIDOnet: 3:711/494
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone
Info: Large Range of IBM files, Games Utils, Packing and Unpacking, Pics

System: Lodestone BBS
Sysop: *Ian McWhirter*
Phone: (02) 456-3264
FIDOnet: 3:711/407
Baud: V22 V22bis B103 B212 PEP
Access: Reg
Computer: IBM XT Clone

System: M A X's BBS
Sysop: *Max*
Phone: (02) 908-3346
Baud: V22 V22bis B103 B212
Access: Reg
Computer: Amiga 500

System: Macarthur BBS
Sysop: *Peter Degotardi*
Phone: (046) 28-1499
Baud: V21 V22 V22bis V23
Access: Public
Computer: Osborne XT

System: MAD BBS
Sysop: *Martin Hopley*
Phone: (02) 579-2029
FIDOnet: 3:712/516
Baud: V21 V22 V22bis V23 B212
Access: Public
Hours: Daily: 2200 - 0700
Computer: IBM XT Clone

System: Mail Dispatch
Sysop: *Matthew Wood & Andrew Avery*
Phone: (02) 969-5861
FIDOnet: 3:711/905

Baud: V21 V22 V22bis V23
Access: Mem Reg
Hours: Daily: 1600 - 0700
Computer: IBM XT Clone

System: Manly BBS
Sysop: *Chris Patten*
Phone: (02) 977-6820
Baud: V21 V22 V23
Access: Reg VA
Note: Requires Ultraterm or Palette on C-64

System: MDL Citadel
Sysop: *Lindsay & Karen Gorrie*
Phone: (02) 796-7145
Baud: V21
Access: Public
Computer: S-100
Info: Discussion based board. Lots of fun. Adventure game hints. One of the original BBS's, now open for immediate access.

System: MEGA Technology TBBS
Sysop: *Stan White*
Phone: (049) 61-6803
FIDOnet: 3:711/490
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM AT Clone

System: Micro Design Lab
Note: Now Called
MDL Citadel

System: MicroBASE BBS
Sysop: *Dave Whiteman*
Phone: (047) 35-2415
FIDOnet: 3:713/305
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM XT Clone

System: Milliway's
Sysop: *David Coucke*
Phone: (02) 357-7027
FIDOnet: 3:712/306
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg VA
Computer: Amiga 1000

System: Model-30
Note: Now Called: The Network Connection BBS
System: Moebius Trip
Sysop: *David Butler*
Phone: (02) 439-7072
FIDOnet: 3:711/408
Access: Mem VA

System: Multicomm Amiga BBS
Status: ***Offline***

System: My Other Half
Sysop: *Phil Young*
Phone: (02) 740-6246
FIDOnet: 3:712/517
Baud: V21 V22 V22bis V23
Access: Public

System: New Frontiers CBCS
Sysop: *Howard Pew*
Phone: (046) 28-0842
FIDOnet: 3:713/613
Baud: V22 V22bis B103 B212 PEP
Access: Reg VA
Computer: IBM 386/16 Clone
System: Newcastle Amiga TBBS
Note: Now Called: MEGA Technology TBBS

System: Newcastle Micro Club BBS
Sysop: *Tony Nicholson*
Phone: (049) 68-5289
Baud: V21 V22 V22bis V23
Access: Mem VA
Hours: Weekdays: 1700 - 0830
Weekends: 24 Hours
Computer: ASI XT

System: Omega Board BBS
Sysop: *Paul Speirs & Linda Piltz*
Phone: (02) 792-1526
FIDOnet: 3:712/711
Baud: V21 V22 V22bis B103 B212
Access: Reg
Computer: IBM AT

System: Opus Info Under
Sysop: *Bill Bolton*
Phone: (02) 449-2618
FIDOnet: 3:3/113
Baud: V22 V22bis PEP
Access: File Server
Note: Software support system for FidoNet. SysOps - File Request ONLY

System: Out of This World BBS
Sysop: *Adam Todd*
Phone: (02) 477-6502
Baud: V21 V22 V22bis
Access: Reg VA
Computer: IBM 386 Clone
Info: Operated and Owned By Lazerbeam Ind. NSW Computer Engineering Division. All systems welcome, including Eureka and keynote. Dedicated to the Blind.

System: Outdoors Education
Sysop: *Mel Lee*
Phone: (046) 66-9881
Baud: V21 V22 V22bis
Access: Reg VA
Computer: IBM AT Clone

System: Outwest BBS
Sysop: *Greg Smith*
Phone: (02) 628-5738
Baud: V21 V22 V22bis V23
Access: Public

System: Palantir C-64 BBS
Sysop: *Steve Sharp*
Phone: (060) 40-1284
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: C-64

System: Paragon Bulletin Board
Sysop: *Jennifer Allen*
Phone: (02) 597-7477
FIDOnet: 3:712/502
Baud: V21 V22 V22bis V23
Access: Reg VA

Northern Territory

System: ACCENT! Amiga BBS
Sysop: *Greg Smith*
Phone: (089) 53-2090
FIDOnet: 3:690/645
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg VA
Computer: Commodore PC10-III

System: Diversion BBS
Sysop: *Trevor Hopps*
Phone: (089) 85-3040
FIDOnet: 3:690/642
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Computer: IBM XT Clone
Info: System caters for Amiga/IBM and Amateur Radio Users. Message and File Bases for above

System: OPUS THETA
Sysop: *Paul Malkinson*
Phone: (089) 87-1011
Baud: V21 V22 V22bis V23
Access: Reg VA
Hours: Weekdays: 1900 - 0700
Sat: 1300 - Mon: 0700
Computer: Samsung XT

Queensland

System: Access Australia BBS
Sysop: *William Brackenridge*
Phone: (07) 284-6990
FIDOnet: 3:640/207
Baud: V21 V22 V22bis
Access: Public

System: Access North Queensland
Phone: (070) 51-0566
Baud: V21 V22 V23
Access: Reg LVA
Computer: IBM XT Clone

System: AMPAK NorthGate OPUS
Sysop: *Brian Wendt*
Phone: (07) 263-7070
FIDOnet: 3:640/205
Baud: V21 V22 V22bis V23 V32 PEP
Access: Public
Computer: PROFOUND 386/25
Info: 144.90 Mhz VK4KJB-11200 bps Amateur Packet Radio

System: Apple-Q Node 1
Sysop: *Graham Black & Vince Crosdale*
Phone: (07) 284-6145
Baud: V21 V22 V22bis V23
Access: Mem
Computer: Apple //e

System: B-MACK Computers BBS
Sysop: *Brendan Mclearie*
Phone: (07) 893-2360
FIDOnet: 3:640/946
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT CLONE
Info: IBM - AMIGA - GIF files. On-line games.

System: BaudWalk BBS
Sysop: *Geoff Ryan*
Phone: (07) 285-5814
Baud: V21 V22 V22bis V23 B103 B212
DOS: PC DOS

System: Blue Lagoon BBS - QLD
Sysop: *David Webb*
Phone: (07) 343-9353
FIDOnet: 3:640/943
Baud: V21 V22 V22bis V23
Access: Public
Computer: Amstrad PC1640DD
Info: Choose 1 for QuickBBS or Choose 2 for Opus at prompts.

System: Commodore Computer Users Group Qld
Sysop: *Graeme Darroch*
Phone: (07) 808-7694
FIDOnet: 3:640/304
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: IBM XT

System: COMTEL BBS
Sysop: *Warren Mason*
Phone: (077) 89-1655
FIDOnet: 3:640/740
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem LVA
Computer: FUJITECH ST
Info: Commodore 64/128 support. IBM and other support also.

System: Contention BBS
Sysop: *Gregory Bradley*
Phone: (077) 73-7524
FIDOnet: 3:640/720
Baud: V21 V22 V22bis V23
Access: Reg
Hours: Daily: 2300 - 0600
Computer: IBM Clone

System: ECLECTIC EMPIRE
Sysop: *Tony Smith*
Phone: (077) 74-1190
FIDOnet: 3:640/701
Baud: V22 V22bis
Access: Reg LVA
Hours: 2030 - 0830 daily
Computer: IBM XT

System: ED-BBS
Note: Now Called
Educational BBS

System: Electric Dreams BBS
Sysop: *Joe Altoff*
Phone: (07) 399-1322
Baud: V21 V22 V23
Access: Mem VA

System: Excalibur BBS / The Missing Lynx
Sysop: *Andrew Johnston*

Phone: (077) 79-5959
Baud: V21 V22 V22bis B212 PEP
Access: Public
Hours: Weekdays: 1500 - 0800
Weekends: 24 Hours
Computer: IBM XT Clone
Info: The system offers the user a choice of BBS software on logon. Either Opus or Lynx may be chosen. The board attempts to cater to general users.

System: FAR-NOR-64 BBS
Sysop: *Ian Pearse*
Phone: (070) 54-6892
Baud: V21 V22 V23 B103 B212
Access: Mem Reg LVA
Computer: C-64

System: Galaxy Mail Dispatch
Sysop: *James Collins*
Phone: (07) 207-9316
FIDOnet: 3:640/316
Baud: V21 V22 V22bis V23 PEP
Access: Reg LVA
Computer: IBM AT Clone
Note: Press RETURN to select BBSoftware
Info: Multi-line LANtastic network.

System: Genius BBS
Sysop: *Jeremy Howell*
Phone: (07) 371-3960
FIDOnet: 3:640/486
Baud: V21 V22 V22bis V23
Access: Public
Hours: 2130 - 0700 daily
Computer: IBM XT Clone

System: Gold Coast Bulletin Board.
Sysop: *Glenn Dawson*
Phone: (075) 39-1732
FIDOnet: 3:640/935
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem LVA
Computer: Star 10 XT IBM clone
Info: Competitions with prizes. Prizes worth more than membership fee. On-line games. Discounts from retailers.

System: Grammar BBS
Sysop: *Barry Taylor*
Phone: (077) 72-6052
FIDOnet: 3:640/702
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM XT Clone

System: Greenhorn Experimental - BrisbUG #1
Sysop: *Mike Richardson*
Phone: (07) 208-7663
FIDOnet: 3:640/301
Baud: V21 V22 V22bis V23 PEP
Access: Mem LVA
Computer: CCS 386

System: Gumtree BBS
Sysop: *Peter Brewer*
Phone: (075) 63-2621
FIDOnet: 3:640/601
Baud: V22 V22bis
Access: Mem Reg
Hours: Weekdays: 2100 - 0800
Weekends: 24 Hours
Computer: IBM XT Clone

System: Hi-Tech CBBS
Sysop: *Clyde Smith-Stubbs*
Phone: (07) 300-5235
Baud: V21 V22 V23

System: Hitek Junkyard
Sysop: *Ernst Preuss*
Phone: (07) 893-1979
FIDOnet: 3:640/730
Baud: V21 V22 V22bis
Access: Public
Computer: CCS 286

System: House of Hawk
Sysop: *Hawk*
Phone: (075) 91-6357
Baud: V21 V22
Access: Reg LVA
Hours: Weekdays: 2000 - 0600
Weekends: 2000 - 0800
Computer: Apple

System: JabberWOCky
Sysop: *David Drummond & Peter Lane-Collett*
Phone: (07) 398-4288
FIDOnet: 3:640/305
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Imagineering XT

System: LANAI
Sysop: *Ray Nugent*
Phone: (075) 92-1947
FIDOnet: 3:640/921
Baud: V21 V22 V22bis V23
Access: Public
Computer: 386 MAX

System: Listline Experimental
Phone: (07) 353-3718
Baud: V21 V23

System: Mackay High School BBS
Sysop: *Bob Chalmers*
Phone: (079) 51-4815
Access: Public
Hours: Weekdays: 1600 - 0730
Weekends: 24 Hours

System: Marlin-Coast BBS
Sysop: *Ray Chalmers*
Phone: (070) 57-7658
FIDOnet: 3:640/501
Baud: V22 V22bis B103 PEP
Access: Reg VA
Computer: Pericomp 386/20

System: Marwick's MadHouse
Sysop: *Paul Marwick*
Phone: (07) 371-5864
FIDOnet: 3:640/820
Baud: V22 V22bis PEP
Access: Mem VA
Computer: Skai 386/20
Info: Running under DesqView

System: Mel-Born BBS #1
Sysop: *Wade Short*
Phone: (075) 38-0817
FIDOnet: 3:640/753
Baud: V21 V22 V22bis V23 V32
Access: Public
Computer: Wyse 286

System: Mel-Born BBS #2
Sysop: *Wade Short*
Phone: (075) 52-0875
FIDOnet: 3:640/754
Baud: V21 V22 V23
Access: Public
Hours: Daily: 1900 - 0700
Computer: Cleveland 286

System: Modem Magic
Sysop: *John Wain*
Phone: (07) 264-4747
FIDOnet: 3:640/212
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM 386 Clone

System: Nightlife QuickBBS
Sysop: *Jonathan and Gillian Levine*
Phone: (07) 849-5927
FIDOnet: 3:640/349
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone

System: NQ Connection
Sysop: *Geoff Gordon*
Phone: (077) 79-7660
FIDOnet: 3:640/710
Baud: V22 V22bis PEP
Access: Reg VA
Computer: Kaypro XT

System: Phoenix BBS
Sysop: *Kelvin Saggers*
Phone: (07) 800-4660
Baud: V21 V22 V22bis V23
Access: Mem

System: Redcliffe Library
Sysop: *Andrew Osborne*
Phone: (07) 283-0315
FIDOnet: 3:640/203
Baud: V21 V22 V22bis V23 B103 B212 PEP
Access: Reg VA
Hours: Weekdays: 1700 - 0800 Weekends: 24 Hours
Computer: Hyundai AT

System: Rock Cave BBS
Sysop: *Rick Dalley*
Phone: (07) 395-1809
Access: Mem VA

System: Sidecar Express BBS
Sysop: *Brendan Pratt*
Phone: (075) 46-3252
Baud: V21 V22 V22bis V23 V32
Access: Mem LVA
Computer: Amiga Sidecar
Info: AMIGA software.

System: Silicon City Brisbane BBS
Note: Now Called Silicon Data BBS

System: Silicon City Brisbane BBS
Sysop: *Silicon City*
Phone: (07) 391-6176
FIDOnet: 3:640/391
Baud: V21 V22 V22bis V23
Access: Public
Computer: ULTRA AT

System: Silicon Data BBS
System: Software 80 BBS
Sysop: *Tony Melius*
Phone: (07) 369-7103
Baud: V21
Access: Reg VA
Hours: Weekdays: 1930 - 0800 Sat: 1430 - Mon: 0800

System: Sun Central BBS
Sysop: *David Sonter*
Phone: (07) 890-1453
FIDOnet: 3:640/390
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM Clone
Note: Registration required for full access.

System: Sunshine Coast Connection
Sysop: *Brian Boseley*
Phone: (071) 44-2889
FIDOnet: 3:640/401
Baud: V21 V22 V22bis V23
Access: Public
Hours: Mon - Sat: 2000 - 0800 Sun: 24 Hours
Computer: IBM AT Clone

System: Swiss Connection
Sysop: *Andrew Osborne*
Phone: (07) 283-0314
FIDOnet: 3:640/204
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM AT

System: The Centre Baud
Sysop: *RAM*
Phone: (07) 368-1239
FIDOnet: 3:640/378
Baud: V21 V22 V22bis B103 B212
Access: Reg LVA
Computer: IBM AT Clone
Info: Based at Paddington SkillSHARE, and run for programmers & unemployed people. Computer consultant, Director of KHIRON software, contract trainers in WP'ing for Paddington SkillShare and contract programmers!

System: The Flying Scotsman
Sysop: *Graeme Willox*
Phone: (07) 297-5265
FIDOnet: 3:640/297
Baud: V21 V22 V22bis V23
Access: Reg VA

Computer: Hyndai 16T
Info: PD ShareWare files. NetMail & EchoMail
Online games EchoMail msgs
Now running Silver Express

System: The Galaxy GateWay Computer System
Sysop: *James Collins*
Phone: (07) 207-8900
FIDOnet: 3:640/230
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM AT Clone
Note: Press RETURN to select BBSoftware

System: The Lian's Den
Sysop: *Yvette Lian*
Phone: (07) 300-1152
FIDOnet: 3:640/352
Baud: V22 V22bis V23
Access: Public
Computer: President 286

System: The Lighthouse BBS
Sysop: *Jason Trump*
Phone: (071) 91-1167
Baud: V21 V22 V22bis V23 V32
Access: Mem Reg VA
Computer: CCS XT
Info: Sunshine Coast Computer User Group. Operated by Caloundra State High School

System: Toowoomba RBBS
Sysop: *Chris White*
Phone: (076) 30-1762
Baud: V21
Access: Mem Reg LVA
Hours: Daily: 2100 to 0630
Computer: C-128

System: Townsville Apple BBS
Sysop: *Christopher Griggs*
Phone: (077) 73-3651
Baud: V21 V22 V23 B103 B212
Access: Mem Reg LVA
Computer: Apple //e

System: Transcendental Connection
Sysop: *Kenneth Page*
Phone: (07) 281-9418
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: C-64
BBSoftware: BBS64

System: Use Escape BBS
Sysop: *Mark Garlipp*
Phone: (07) 371-4403
FIDOnet: 3:640/371
Baud: V21 V22 V23
Access: Public
Hours: 2130 - 0700 daily
Computer: IBM AT clone
Info: Some AMIGA software.

System: XENTEK
Sysop: *Ken Speakman*
Phone: (07) 807-4808
Baud: V22 V22bis
Access: Public
Computer: Intel 386
Info: Xenix/Unix Specialists

South Australia

System: ADAM
Sysop: *Greg Hicks*
Phone: (08) 370-5775
FIDOnet: 3:680/805
Baud: V21 V22 V22bis V23 V32 HST
Access: Reg LVA
Computer: IBM 386/25 Clone
Info: V32 HST Available to interstate callers ONLY on (08) 370-5913 & (08) 370-5837. 1.4 Gigabites of Hard Drive Storage. 9 Phone Lines Available

System: Amiga Line Forever (ALF)
Sysop: *Greg Parr*
Phone: (08) 266-3055
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: Amiga 1000

System: AUMUG
Sysop: *Sean Donaghy*
Phone: (08) 232-0944
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: Macintosh Plus

System: Australian BBS Registry
Sysop: *Rodney Creer*
Phone: (08) 281-0433
FIDOnet: 3:680/808
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone

System: Cadzow Access
Sysop: *Scott Cadzow*
Phone: (08) 338-2272
FIDOnet: 3:680/811
Baud: V21 V22 V22bis V23 PEP
Access: Public
Computer: NEC 386

System: Coffee Time BBS
Sysop: *Terry Mulvaney*
Phone: (08) 254-9423
FIDOnet: 3:681/860
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM XT Clone

System: Computer Connection
Sysop: *Ray & Vicki Crawford*
Phone: (08) 384-7316
FIDOnet: 3:680/809
Baud: V21 V22 V22bis V23
Access: Public
Hours: Daily: 1730 - 0900
Computer: IBM XT Clone

System: Computer Talk
Sysop: *Bruce Kelly*
Phone: (08) 272-9177
FIDOnet: 3:680/816
Baud: V21 V22 V22bis V23
Access: Reg
Computer: IBM XT Clone

System: Elite!
Sysop: *Andrew Gleave & Mark Banks*
Phone: (08) 365-1007
Baud: V21 V22 V22bis V23
Access: Public
Computer: Amiga 500

System: Full Metal Straitjacket
Sysop: *Alastair Rankine*
Phone: (08) 272-2291
FIDOnet: 3:680/820
Baud: V21 V22 V22bis V23 V32
Access: Public
Computer: Compaq 386
Info: Special Interest Groups (message & file areas) for PCs, Macs (large file area) and Atari STs. Also check out the "Pit" for total stupidity.

System: Jaques Cousteau's UnderWater BBS
Sysop: *Crispin Harris & Garth Kidd*
Phone: (08) 377-0695
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM 386SX Clone
Info: General support BBS with a faintly aquatic flavour. Will give ANYTHING a shot

System: Midnight Caller
Sysop: *John Buetefuer*
Phone: (08) 281-2094
FIDOnet: 3:680/818
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone
Info: The main theme of the board is entertainment, with a wide selection of quality on-line games. I also offer a selection of echo & local message areas, file areas and the Darkness RPG

System: Multiple System BBS
Sysop: *Danny Vozzo*
Phone: (08) 255-5116
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: Apple //+

System: Nexus Education Dept BBS
Phone: (08) 243-2477
Baud: V21
Access: Mem

System: Northern Districts Computer Club Inc.
Sysop: *Kym Gotch*
Phone: (08) 341-2509
Baud: V21 V22
Access: Mem VA
Computer: IBM XT Clone

System: Oracle PC-Network
Sysop: *Don Crago & Grayham Smith*
Phone: (08) 260-6222
FIDOnet: 3:680/804
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM AT Clone

System: Phone Box BBS
Sysop: *Darryl Merritt*
Phone: (08) 380-5505
FIDOnet: 3:681/854
Baud: V21 V22 V22bis V23 V32
Access: Public
Computer: Kaypro AT

System: S.A C BBS
Sysop: *Austen Evans*
Phone: (08) 322-2618
Baud: V21 V22 V23 V23ORG B103 B212
Access: Mem LVA
Computer: C-128

System: SA Computer Service BBS
Sysop: *Rod Taylor*
Phone: (08) 242-1798
Baud: V21 V22 V22bis V23
Access: Public
Hours: Weekdays: 1800 - 0800 Weekends: 24 Hours
Computer: Premier 386 33mhz

System: SA Country CLUB
Sysop: *Martin Crockett*
Phone: (085) 22-4434
FIDOnet: 3:681/853
Baud: V21 V22 V22bis V23 V32
Access: Public
Computer: IBM AT Clone
Info: Support for all machines, Opus support Board for S.A., BBS Games support Board

System: Saturn V
Sysop: *Chris Kilgariff*
Phone: (08) 364-2302
Baud: V21 V22 V22bis V23
Access: Public
Hours: Daily: 1200 - 0200
Computer: IBM XT CLone
Info: Saturn V is Dominantly a Message Board, I do run some files. The Main theme of the Board is Space.

System: Sorcerer Users Group BBS
Sysop: *Steve Fraser*
Phone: (08) 260-6576
Baud: V21
Access: Mem LVA
Computer: Pulsar LBB

System: Talisman BBS
Sysop: *Karl Bridger*
Phone: (08) 281-0068
FIDOnet: 3:681/856
Baud: V21 V22 B103 B212
Access: Public
Computer: IBM XT Clone
Info: I Offer a large range of Echo message areas and A small selection of file sections I also

offer a online role playing game called The Darkness. Users can Request message area. Also I accept Crash mail and file reqs.

System: TAN80 BBS
Sysop: *Erik Rasmussen*
Phone: (08) 386-0932
Baud: V21 V22 V22bis V23
Access: Public
Hours: Weekdays: 1800 - 0700 Weekends: 1200 - 0700
Computer: IBM XT Clone
Info: Supporting Tandy Models 1, 3 & 4

System: The Bureau BBS
Sysop: *Patrick Browne*
Phone: (08) 258-2002
OZnet: 7:833/384
Baud: V22 V22bis
Access: Reg VA
Computer: Kaypro XT

System: The Key Board
Sysop: *Paul Lawrence*
Phone: (08) 344-5354
FIDOnet: 3:680/814
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM Clone
DOS: MS DOS
BBSoftware: Opus

System: The Phoenix BBs
Sysop: *Scott Amerland*
Phone: (086) 73-7041
FIDOnet: 3:680/817
Baud: V21 V22 V22bis V32 HST
Access: Public
Computer: IBM 386 Clone

System: The Realm
Sysop: *Matt Rubinstein*
Phone: (08) 374-0462
Baud: V21 V22 V22bis V23 V32
Access: Public
Computer: Acorn Archimedes
Info: An interactive multiplayer role-playing game. Defeat the evil Mocelet!

System: The Void
Sysop: *Mike Smith*
Phone: (08) 388-5702
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM Clone
Info: A Very Twisted and Warped BBS. Online Games, RPG's

System: Trivia BBS
Sysop: *Daron Ryan*
Phone: (08) 377-1067
Baud: V21 V22 V22bis V23
Hours: Weekdays: 1800 - 0800 Weekends: 24 Hours

System: Typelink SA
Sysop: *Kathy Fraser*
Phone: (08) 211-8510
Baud: V22 V22bis
Access: Reg
Computer: IBM AT Clone
Info: Register by phoning sysop on (08) 211 7866 during business hours

Tasmania

System: Hobart File Exchange
Sysop: *Harry Vollmar*
Phone: (002) 78-1982
FIDOnet: 3:670/202
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Computer: IBM 386 Clone

System: Hobart Users Bulletin Board
Sysop: *Alan Hughes*
Phone: (002) 43-5041
FIDOnet: 3:670/201
Baud: V21 V22 V22bis B103 B212
Access: Mem Reg LVA
Computer: IBM XT Clone

System: Premium BBS
Sysop: *Peter Silver*
Phone: (002) 49-1011
Baud: V21 V22 V22bis V23 V32 B103 B212
Access: Mem Reg VA
Computer: Cleveland 286

System: Tasmanian Amiga Group QBBS
Note: Now Called Tassie DataBank

System: Tassie Bread Board System
Sysop: *Ian Campbell*
Phone: (003) 26-6114
FIDOnet: 3:670/302
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM AT Clone

System: Tassie DataBank
Sysop: *Roy Austen*
Phone: (003) 44-9762
FIDOnet: 3:670/301
Baud: V21 V22 V22bis V23 V32
Access: Reg VA
Computer: IBM AT Clone

System: The Amiga Hangout
Sysop: *Jason Camino*
Phone: (003) 99-3492
FIDOnet: 3:670/303
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM XT Clone

Victoria

System: ABE Opus
Sysop: *Doug Gordon*
Phone: (03) 808-3599
Baud: V21 V22 V22bis V23
Access: Public
BBSoftware: Opus

System: AIM - A)ccess I)n M)elbourne
Sysop: *David Hellwege*
Phone: (03) 592-3338
FIDOnet: 3:634/380
Baud: V22bis HST
Access: Public
Computer: IBM AT Clone

System: AmigaLink
Sysop: *Bohdan Ferens*
Phone: (03) 792-3918
OZnet: 7:830/324
Baud: V21 V22 V22bis V23
Access: Mem LVA

System: AmigaLink II
Sysop: *Gary Gajic*
Phone: (03) 376-6385
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM XT

System: AMNET
Sysop: *Peter Hallgarten*
Phone: (03) 366-7055
OZnet: 7:832/365
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: Pulsar 386
Info: 10.147 Mhz VK3AVE (300 baud) 147.6 Mhz VK3RPA (1200 baud) Amateur Packet Radio

System: Andy's BBS
Sysop: *Andrew Gulovsen*
Phone: (03) 359-6378
FIDOnet: 3:634/383
Baud: V21 V22 V22bis V23 V32
Access: Public
Computer: XT Clone

System: Antarctic Crystal
Sysop: *Greg Jones*
Phone: (059) 68-5885
OZnet: 7:831/346
Baud: V22 V22bis V23
Access: Public
Computer: IBM AT Clone

System: ANZUGS CBCS
Sysop: *Gordon Castle*
Phone: (03) 563-2496
OZnet: 7:833/380
Baud: V22bis PEP
Access: Public
Computer: IBM Model 80

System: AUSOM Macboard
Sysop: *Ross Sheehy*
Phone: (03) 587-4360
Baud: V21 V22 V22bis V23 V32 B103 B212
Computer: Macintosh
Info: Second Line: (03) 587-4194

System: Axiom BBS
Sysop: *Andrew Rajcher*
Phone: (03) 509-4417
FIDOnet: 3:634/388
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: Saffire AT
Info: Australia's gate to KesherNet and link into CUSSNet. Many echomail conferences brought in direct to Axiom BBS from the USA incl. Dr.Who and Star Trek Echos

System: Ballarat C.A.E.
Sysop: *Thoshan Ruberu*
Phone: (053) 339-285
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT

System: Bay City BBS
Sysop: *Don Grover*
Phone: (03) 772-0562
OZnet: 7:833/385
Baud: V21 V22 V22bis V23 B103 B212 PEP
Access: Public
Computer: AT Clone

System: Big Tedd's Bulletin Board
Sysop: *Rob Bates*
Phone: (03) 509-6067
FIDOnet: 3:634/381
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM XT Clone
Info: Private database providing information, news, games, and local, national and international mail and discussions. Pseudonym access to many areas, but real names must be disclosed on first login. Restricted to users aged over 18.

System: Bits & Bytes
Sysop: *Linda Brown*
Phone: (059) 81-2186
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Computer: XT Turbo

System: Brainstorm Oz!
Sysop: *Rowan Stevens*
Phone: (03) 758-7086
FIDOnet: 3:632/305
Baud: V21 V22 V22bis V23 B103 B212
Computer: IBM XT

System: Chicago
Sysop: *Bruce Wayne*
Phone: (03) 728-6698
Baud: V21 V22 V22bis V23
Access: Public
Computer: XT Turbo

System: Club Amiga
Sysop: *Robert Canavan*
Phone: (03) 743-1957
FIDOnet: 3:633/376
Baud: V21 V22 V22bis V23
Access: Public

System: Comet BBS
Sysop: *Caufield High School*
Phone: (03) 211-0079
Baud: V21 V22

System: Compusoft BBS
Sysop: *George Tsoukas*

Phone: (03) 386-6019
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: Mitac 386

System: Crazy Diamond
Sysop: *Kerro Panille*
Phone: (03) 568-4847
Baud: V21
Access: Public
Hours: 2130 - 0730 Daily
Computer: C64

System: Custom Programming BBS
Sysop: *Alan Williamson*
Phone: (03) 848-3331
OZnet: 7:831/340
Baud: V22 V22bis HST
Access: Public
Computer: IBM AT Clone
Info: Downloads available on first call. Supporting IBM PC's - specialising in Business, LAN and OS/2 software. Official support BBS for D'Bridge Email System and the Australian Megalist. Victorian BBS list co-ordinator

System: dBoard
Sysop: *John Kewley*
Phone: (03) 525-6252
Baud: V21 V22 V23
Access: Mem Reg VA
Computer: IBM AT Clone
Info: Long term users are expected to pay a subscription towards the BBS operation and the acquisition of software from overseas. Naturally members will have access privileges and benefits.

System: Delta BBS
Sysop: *Big Mother*
Phone: (03) 793-4548
Baud: V21 V22 V22bis V23
Access: Public
Computer: Apple //e

System: Doodz Domain
Sysop: *Scott Rigby*
Phone: (03) 646-5861
Baud: V21 V22 V22bis V23 B212 PEP
Access: Public
Computer: IBM XT
Note: PEP tones are at the end of the scan
Info: The Doodiest Board in Existence! Many active, non boring message areas. A special area for files that come in direct from the U.S. We get about 2Mb a week direct from the U.S.

System: Dr Blaze
Sysop: *Ron Lyth*
Phone: (03) 890-9323
FIDOnet: 3:634/384
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone

System: Eastcom Opus CBCS
Sysop: *Keith Haslam*
Phone: (03) 808-0775
OZnet: 7:830/312
Baud: V21 V22 V22bis
Access: Public
Computer: Eastcom 386/20C
Info: Dedicated to business related software, utilities & executive diversions (games). Also catering for amateur radio operators.

System: Eastern Plains BBS
Sysop: *Martin Taylor*
Phone: (051) 74-9434
Baud: V21 V22 V22bis V23 B103 B212
Access: LVA
Hours: 0700 - 2300 Weekdays, 24 Hours Weekends
Computer: IBM AT Clone

System: Eastern Suburb Eighty User Group
Sysop: *Martin Axford*
Phone: (03) 819-5179
FIDOnet: 3:632/347
Baud: V21 V22 V22bis V23
Access: Public
Computer: Ultra AT
Info: 15Mb of Clipper & dBase III + utility files online.

System: Eastwood Opus
Sysop: *Mick Stock*
Phone: (03) 870-4623
FIDOnet: 3:632/304
Baud: V22 V22bis V23
Access: Reg VA
Computer: IBM AT Clone
Info: Home of the Z80 CPM Echo

System: Emos
Sysop: *Glenn Wright*
Phone: (03) 787-3360
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Hours: 0600 - 0200 Daily
Computer: Macintosh

System: Fourth Dimension BBS
Sysop: *Galvatron*
Phone: (03) 560-9292
Baud: V21 V22
Access: Public
Computer: IBM XT

System: Gamma Computers
Sysop: *Frank Donato*
Phone: (03) 885-6227
OZnet: 7:833/394
Baud: V21 V22 V22bis V23
Access: Public

System: Green Griffon Inn
Sysop: *The Obsidian*
Phone: (03) 460-1128
Baud: V21 V22 V22bis
Access: Public
Hours: Daily: 2200 - 0630
Computer: IBM XT
Info: RPG orientated board, with Role playing games, Online games, Also caters for other interests. Part of FRG/MULTInet associated with EGOnet, OZnet, Technet, + more.

System: Happy Hacking BB
Sysop: *Eric Anderson*
Phone: (03) 787-8759
Baud: V21 V22 V22bis V23
Access: Public

System: High Voltage
Sysop: *Scott Fraser*
Phone: (054) 41-6054
FIDOnet: 3:634/386
Baud: V21 V22 V22bis V23
Access: Public
Computer: Profound XT Clone

System: Hitchhikers Guide to the Galaxy
Sysop: *Zaphod Beebelbrox*
Phone: (03) 546-3038
Baud: V21 V22 V22bis V23
Access: Public
Hours: 0700 - 2300 daily

System: Icehouse BBS
Sysop: *Barbara Linton*
Phone: (03) 720-3261
FIDOnet: 3:636/407
Baud: V22 V22bis B103 B212
Access: Public
Computer: IBM 386 Clone

System: Island BBS
Sysop: *Ross Skinner*
Phone: (03) 742-3993
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM XT Clone
Info: Commodore 64/128, Amiga and IBM users are catered for with non-member file areas etc. Adventurers Realm, hints & tips for Adventure gamers etc. Also gain access to the Island Software Club with all its fantastic benefits.

System: Latrobe Valley BBS
Sysop: *Stephen Semple*
Phone: (051) 27-4302
FIDOnet: 3:632/351
Baud: V21 V22 V22bis V23 V32
Access: Reg LVA
Computer: IBM AT Clone

System: Little Shop of Horrors
Sysop: *John Marsden*
Phone: (03) 583-4778
FIDOnet: 3:633/364
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT
Info: Catering for all computers, Interests and a large selection of online games.

System: MACE
Sysop: *Ron Cork*
Phone: (03) 764-1185
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: Atari ST
Info: Predominantly Atari users, both 8 & 16 bit. File up & download, email, news, views & club info. Will accept some IBM & Mac Software. We have emulators for both. Will accept pictures in almost any format.

System: Maxitel BBS
Note: Now Called
The Fourth Dimension BBS

System: MBUG Australia Inc
Sysop: *Mike Thompson*
Phone: (03) 882-9421
FIDOnet: 3:633/362
Baud: V21 V22 V22bis V23
Access: Mem LVA

System: Melbourne Data Exchange
Sysop: *Trevor McKersher*
Phone: (03) 596-8022
Baud: V22 V22bis V23
Access: Public
Computer: IBM Clone
Note: Two lines on this number!
Info: Specialising in publishing & graphic images.

System: Melbourne Forth Interest Group
Sysop: *Lance Collins*
Phone: (03) 809-1787
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM XT Clone

System: Melbourne PC Users Group BBS
Sysop: *Colin Macauley*
Phone: (03) 696-2760
OZnet: 7:833/391
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Wyse 386

System: MESA RBBS
Note: Now Called
Personal Computer Support Group

System: Metamorphosis CBCS
Sysop: *Loserblade*
Phone: (03) 560-2659
Baud: V22 V22bis
Access: Public
Hours: 2100 - 0800 Daily

System: Micom CBCS
Sysop: *Peter Jetson*
Phone: (03) 758-8642
FIDOnet: 3:633/371
Baud: V21 V22 V22bis V23
Access: Mem Reg
Computer: IBM Clone
DOS: MS DOS

System: Micronet Information System
Sysop: *Luke Groeneveld*
Phone: (03) 741-9055

FIDOnet: 3:633/368
Baud: V21 V22 V22bis V23
Access: Public

System: Motel International
Sysop: *Kim & Ruth Gration*
Phone: (03) 509-9611
Baud: V21 V22 V22bis V23
Access: Public

System: NARNIA
Sysop: *Ron Lee*
Phone: (059) 83-2046
Baud: V21 V22 V22bis V23
Access: Public
Hours: Daily: 2300 - 0700

System: Nitroland
Sysop: *Nitro*
Phone: (054) 41-6515
Baud: V21 V22 V23
Access: Mem VA
Computer: Commodore PC
Info: A BBS with a difference. We cater for the experienced user. Multiple downloads available for all with even greater access for members.

System: Niveous
Sysop: *Rupert Russell*
Phone: (053) 33-2170
Baud: V21 V22 V22bis V23
Access: Public

System: Omega BBS/Vortex Host
Sysop: *Mark Gregson*
Phone: (052) 22-1670
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Computer: IBM AT
Info: This system supports direct user accounts to the Vortex Host. The Omega BBS (running under Vortex) supports MS-DOS, Xenix/Unix and Minix software. A Fido/Opus mail net will be installed soon. UUCP already available.

System: Orion
Sysop: *Phoenix*
Phone: (03) 568-0835
Baud: V22bis
Access: Public
Computer: IBM AT
Info: A friendly, intimate board with good message and file areas. Members are helpful and communicative.

System: Outer East BBS
Sysop: *Ross Sargent*
Phone: (03) 736-1181
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone

System: PC Connection IBBS
Sysop: *Lloyd Borrett*
Phone: (03) 388-0909
OZnet: 7:833/392
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: Ultra AT
Info: Multi-user system currently supporting 8 incoming lines. Teleconferencing, Special Interest Groups, Private E-mail, Library of Files, On-line Shopping, and Multi-user Action and Adventure Games! FREE access to all.

System: Peninsula Colour Computer Club BBS
Sysop: *Stan Blazejewski*
Phone: (03) 580-4605
Baud: V21
Access: Reg LVA
Hours: Daily: 2130 - 0700
Computer: Tandy CoCo 1

System: Personal Computer Support Group
Sysop: *David Woodberry & Bob Stafford*
Phone: (03) 563-9102
FIDOnet: 3:632/349
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: IBM XT Clone

System: Physi-Chall
Sysop: *Umberto Bonollo*
Phone: (03) 523-0849
Baud: V21 V22 V22bis V23
Access: Public

System: Rastar
Sysop: *Alf*
Phone: (03) 369-2403
Baud: V21 V22 V22bis
Access: Public
Computer: IBM XT Clone

System: Redback BBS
Sysop: *Shalamar*
Phone: (058) 21-8273
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Hours: Weekdays: 2200 - 0600
Weekends: 2100 - 0600
Computer: Amiga 1000

System: Sam's Opus BBS
Sysop: *Alan Haslar*
Phone: (03) 563-1117
Baud: V21 V22 V22bis V23
Access: Public

System: Schizophrenia
Note: Now Called
The Frankston Exchange

System: SMART BBS
Sysop: *Richard Hoskin*
Phone: (03) 602-1336
FIDOnet: 3:632/302
Baud: V21 V22 V22bis
Access: Mem VA
Computer: ALR 386

System: Southern Mail
Sysop: *Maurie Halkier*
Phone: (03) 725-1621
OZnet: 7:830/320
Baud: V22 V22bis PEP
Access: Public
Computer: Eastcom 386/25
Info: Support for DOS orientated Operating Systems, LANs & Programmer's utilities especially PC-MOS & for Canon Laser Products. Support for BBS operators with BBS utilities online.

System: Swinestud
Sysop: *Craig Silva*
Phone: (03) 818-6389
FIDOnet: 3:633/363
Baud: V21 V22 V22bis V23
Access: Reg VA
Hours: Weekdays: 1900 - 0900
Weekends: 0000 - 1200
Computer: IBM XT Clone
Info: This Bulletin Board is for serious discussion of education issues and is run by Swinburne Student Union. We also discuss other political issues. No games online and few files. Looking to develop progressive use of computers.

System: Talk Channel
Phone: (03) 509-9088
Baud: V21 V22 V22bis V23
Access: Mem LVA
Info: Phone number changing to (03) 509-4844 soon!

System: Tardis II
Sysop: *Malcolm Miles*
Phone: (03) 859-3109
Baud: V21 V22 V22bis V23
Access: Public
Computer: PC

System: The Amiga Limits
Sysop: *Captain Kirk*
Phone: (03) 725-2895
Baud: V21 V22 V23
Access: Reg VA
Computer: IBM AT

System: The Bear Essentials
Sysop: *Paul Ridley*
Phone: (03) 885-7101
FIDOnet: 3:633/365
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone
Note: Glen Iris suffers line noise during peak period useage
Info: Mainly message areas, local & echo to a few other bbs's, Little Shop of Horrors, The Witches Brew, Ghost of Opus (canberra). Message Areas, FidoNet Msg Areas. Greater access gained by No. of calls

System: The Black Board
Sysop: *Negative Energy*
Phone: (03) 776-5206
Baud: V21 V22 V22bis V23
Access: Public
Computer: Apple IIe
Note: Type NEW at "Login:" prompt
System: The Boolean Board
Sysop: *Ian Marr*
Phone: (055) 62-9797
FIDOnet: 3:635/414
Baud: V21 V22
Access: Public
Hours: Mon - Sat: 1800 - 0900
Sat - Mon: 1200 - 0900
Computer: Acer Plus 700
DOS: MS DOS

System: The Cage
Sysop: *Avatar*
Phone: (03) 882-2605
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone

System: The CatHouse DownUnder
Sysop: *John Princen*
Phone: (03) 875-8215
Baud: V22 V22bis
Access: Public
Computer: Ultra AT
Info: Specially slanted towards inexperienced PC users that need help and we also have many on-line games as well as a reasonable range of public domain and shareware programs.

System: The Cheltenham Exchange
Sysop: *Garry Gillard*
Phone: (03) 585-0495
FIDOnet: 3:636/406
Baud: V22 V22bis B103 B212
Access: Public
Computer: IBM XT Clone

System: The Clone Phone
Sysop: *Greg Naylor*
Phone: (03) 876-4118
FIDOnet: 3:636/404
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Hours: Daily: 0800 - 2300
Computer: IBM 386 Clone
Note: Moving to (03) 329-1828 during the next few weeks.

System: The Crossover
Sysop: *Stephen Paddon*
Phone: (03) 364-1282
Baud: V21 V22 V22bis V23
Computer: IBM AT

System: The Domestic Engineer
Sysop: *Rob Roder*
Phone: (03) 720-6356
Baud: V21 V22 V22bis
Access: Public
Hours: Daily: 2130 - 0730
Computer: XT Clone

System: The Frankston Exchange
Sysop: *Stephen Rivenell*
Phone: (03) 776-8022
FIDOnet: 3:635/400
Baud: V21 V22 V22bis V23
Access: Public

Computer: Firestar 286

System: The Further Regions QuickBBS
Sysop: *The Outsider*
Phone: (03) 725-1923
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Computer: IBM AT

System: The Great MacHouse
Sysop: *Matthew Simpson*
Phone: (03) 561-6942
Baud: V21 V22 V22bis V23
Access: Public
Computer: Macintosh

System: The Hot-Line
Sysop: *Mark Firus & Darren King*
Phone: (03) 547-5117
Baud: V22 V22bis B103 B212
Access: Reg LVA
Computer: IBM XT Clone

System: The Image BBS
Sysop: *Garry Stuart & Nigel Newby*
Phone: (03) 720-1259
OZnet: 7:833/397
Baud: V21 V22 V22bis V23
Access: Public
Computer: Image 386
Info: First time downloads, No ratio for regular users.

System: The Last Frontier
Sysop: *Alternate One*
Phone: (03) 885-9110
Baud: V21 V22 V22bis V23
Access: Public

System: The Mad House
Sysop: *TML*
Phone: (03) 758-9573
Baud: V21 V22 V22bis
Access: Public

System: The Outer Limits
Sysop: *Captain Kirk*
Phone: (03) 725-6650
Baud: V21 V22 V23
Access: Reg VA
Computer: IBM AT

System: The Pirate's Cove
Sysop: *Scott Enwright*
Phone: (03) 596-1589
Baud: V21 V22 V22bis V23
Access: Public
Computer: NEC Powermate 386

System: The Real Connection
Sysop: *The Real Article & Deep Image*
Phone: (03) 808-0810
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone
Note: Second Line: (03) 808-0331

System: The Roaring Rapids
Sysop: *Greg Holloway*
Phone: (03) 877-2609
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Hours: Weekdays: 0700 - 0100 Weekends: 24 Hours
Computer: Epson PC XT
Info: We have files, online games, messages, everything. We have a GIF picture area which contains over 3 meg of GIF pics. Also have an active Macintosh file and message area as well as an Amiga file & message area. A great all-round BBS.

System: The Round Table
Sysop: *King Arthur*
Phone: (03) 807-1632
Baud: V21 V22 V22bis V23
Access: Public

System: The Seven Seas
Sysop: *Warfish*
Phone: (03) 49-1367
Baud: V21 V22 V22bis V23
Access: Public

System: The Software Bank
Sysop: *Simon Walsh*
Phone: (03) 820-1632
FIDOnet: 3:632/301
Baud: V22 V22bis B103 B212
Access: Reg LVA
Computer: IBM XT Clone

System: The Ultimate 64
Status: ***Offline***

System: The Ultimate Illusion
Sysop: *Simon Gronow*
Phone: (03) 589-4713
FIDOnet: 3:632/998
Baud: V21 V22 V22bis V23
Access: Public
Computer: XT Turbo

System: The Underground
Phone: (03) 840-1565
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone
Note: 4 Lines available on the above number

System: The Wastelands
Sysop: *Colin Berg*
Phone: (03) 309-6645
FIDOnet: 3:634/387
Baud: V22 V22bis
Access: Public
Computer: IBM AT Clone

System: The Witche's Brew
Sysop: *Erika Matlen*
Phone: (03) 718-2198
FIDOnet: 3:633/370
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem VA
Computer: IBM XT
Info: Catering for a variety of computers, local & echo mail available to all; plenty of online games! Never a dull moment guaranteed!

System: Valicomm Opus
Sysop: *Bill Walker*
Phone: (051) 27-2572
FIDOnet: 3:632/350
Baud: V21 V22 V22bis V32 HST
Access: Reg LVA
Computer: IBM XT Clone

System: Valley View Opus
Note: Now Called Outer East BBS

System: Yarra Valley BBS
Sysop: *Frank Conner*
Phone: (059) 64-3126
Baud: V21 V22 V23 B103 B212
Access: Public
Computer: C-64

System: Zoist
Sysop: *Bob Fletcher*
Phone: (03) 467-7984
Baud: V21 V22 V22bis B103 B212 HST
Access: Public
Computer: IBM 386 Clone
Info: Part of international network specialising In UFO Research & the ParaNormal also carry conferences on the occult.

Western Australia

System: 2280 BBS
Sysop: *Luke Pepper*
Phone: (09) 454-4779
FIDOnet: 3:690/635
Baud: V21 V22 V22bis V23 V23ORG
Access: Public
Computer: IBM XT
Info: Lots of online games, huge message base. The intelligent phreaks choice.

System: Blood & Silicon BBS
Phone: (09) 388-2700
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg LVA
Computer: ALR 386/220
Info: Teleconferencing

System: CITADEL BBS
Sysop: *Adam Blake*
Phone: (09) 367-8856
FIDOnet: 3:690/632
Baud: V21 V22 V23
Access: Public
Computer: IPEX AT Turbo

System: COMMlink
Sysop: *Andrew Waite*
Phone: (09) 451-7288
FIDOnet: 3:690/628
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: Atari ST

System: Galaxy Alliance
Sysop: *Justin Twiss*
Phone: (09) 453-6837
FIDOnet: 3:690/634
Baud: V21 V22 V22bis V23
Access: Mem VA
Hours: Daily: 2100 - 0700
Computer: Kitt Computers XT
Info: LOTS!!! of online games

System: Gamma Istari
Sysop: *Richard Dale*
Phone: (09) 493-1534
FIDOnet: 3:690/626
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem LVA
Computer: IBM AT

System: GOLDFIELDS Opus
Sysop: *Graham Clark*
Phone: (090) 21-7755
FIDOnet: 3:690/643
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone

System: Hedland's First Bulletin Board
Sysop: *Wayne Wessling*
Phone: (091) 73-2275
FIDOnet: 3:690/644
Baud: V21 V22 V22bis V23 PEP
Access: Reg
Computer: Epson PC+

System: Kardinya Turbo BBS
Sysop: *Tony Salmeri*
Phone: (09) 331-1695
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg LVA
Computer: IBM XT Clone

System: Lightning BBS Line 1
Sysop: *Simon Blears*
Phone: (09) 275-8225
FIDOnet: 3:690/601
Baud: V22 V22bis B212 PEP
Access: Reg LVA
Computer: IBM XT Clone

System: Mini Omen
Sysop: *Greg Watkins*
Phone: (09) 279-8555
Baud: V21 V22 V23
Access: Public
Computer: TRS-80

System: Murdoch University ES-BBS1
Sysop: *Roger Atkinson*
Phone: (09) 332-2604
Baud: V21
Access: Mem VA
Computer: Commodore 128D

System: Nemo Games Machine
Sysop: *Graeme Platt*
Phone: (09) 370-2666
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Apple //e

System: Nemo Multiple BBS RAPL
Sysop: *Graeme Platt*
Phone: (09) 370-1855
Baud: V21 V22 V22bis V23
System: Oasis ST BBS
Sysop: *Lou Schillaci*
Phone: (09) 430-5431

Baud: V21 V22
Access: Mem LVA
Hours: Mon - Sat: 1800 - 0800
Sun: 24 Hours
Computer: Atari

System: Paragon Computers BBS
Sysop: *Paul Reeves Steve Quartely Chris Parker*
Phone: (09) 325-5160
Baud: V21 V22 V22bis V23
Access: Public
Computer: Atari ST

System: Pegasus Entertainment System
Sysop: *Michael Russell*
Phone: (09) 345-2902
FIDOnet: 3:690/621
Baud: V21 V22 V22bis V23
Access: Public
Computer: Epson PC
Info: Online games plus information for C, Pascal and Basic programmers.

System: Perth Omen
Sysop: *Mark Dignam*
Phone: (09) 244-2111
Baud: V21 V22 V22bis V23 V23ORG
Access: Mem Reg
Computer: TRS-80

System: PhilComm BBS
Sysop: *Hubert Dumas*
Phone: (09) 450-6835
FIDOnet: 3:690/633
Baud: V21 V22 V22bis
Access: Public

System: Pro-Nemo
Sysop: *Graeme Platt*
Phone: (09) 370-3333
Baud: V21 V22 V22bis V23
Access: Reg VA

Computer: Apple //e
Info: Networking System with UNIX C-Shell

System: Split Infinity
Sysop: *David Sparrow*
Phone: (09) 309-1368
Baud: V21 V22 V22bis V23
Access: Public
Hours: Weekdays: 2200 - 0500
Weekends: 24 Hours

System: Student Access Message Service
Sysop: *Peter Walton & John Bramley*
Phone: (09) 321-9721
Baud: V21 V22 V23
Access: Reg VA

System: Terminal BBS
Sysop: *Andrew Milner*
Phone: (09) 389-8048
FIDOnet: 3:690/625
Baud: V21 V22 V22bis V23 B103 B212 HST
Access: Reg VA
Computer: IBM AT Clone
Info: Amiga and QuickBBS support

System: The Bombay Duck
Sysop: *Steve Hodges*
Phone: (091) 44-2253
FIDOnet: 3:690/641
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem Reg LVA
Computer: Comsys XT

System: The Codiac Republic BBS
Sysop: *Simon Shaw*
Phone: (09) 481-2139
FIDOnet: 3:690/623
Baud: V21 V22 V22bis V23
Access: Reg

Hours: Weekdays: 1700 - 0800
Weekends: 24 Hours
Computer: Compaq 386/25
DOS: CompaqDOS
BBSoftware: Opus

System: The Exchange BBS
Sysop: *Charlie Stewart*
Phone: (09) 279-5996
Baud: V22
Access: Public
Hours: Mon - Sat: 1900 - 0600
Computer: IBM XT Clone

System: The Gas Station
Sysop: *Don Hill*
Phone: (091) 82-2469
FIDOnet: 3:690/624
Baud: V21 V22 V22bis V23
Access: Public
Hours: Weekdays: 1700 - 0630
Weekends: 24 Hours
Computer: NEC PowerMate 1

System: The Gathering BBS
Sysop: *Ken Peters*
Phone: (09) 272-4711
FIDOnet: 3:690/630
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM AT Clone

System: The Library BBS
Sysop: *Colin Wheat*
Phone: (09) 293-2857
FIDOnet: 3:690/613
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT

System: Treasure Island
Sysop: *Gloria Platt*
Phone: (09) 271-0471
Baud: V21 V22 V22bis V23
Access: Reg VA

Computer: Apple //e

System: West-Gate BBS
Sysop: *Phil van Leen*
Phone: (09) 481-0489
FIDOnet: 3:690/640
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: IBM AT Clone
System: Z-Node 62
Sysop: *Lindsay Allen*
Phone: (09) 450-0200
Baud: V21 V22 V22bis V23
Access: Public
Computer: BigBoard II

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ACT Contact: PC Exchange Opus (062) 58-1406
FIDOnet: 3:620/244
NT Contact: Oracle PC-Network (08) 260-6222
FIDOnet: 3:680/804
QLD Contact: AMPAK Opus/PRBBS (07) 263-7070
FIDOnet: 3:640/205
SA Contact: Oracle PC-Network (08) 260-6222
FIDOnet: 3:680/804
TAS Contact: Hobart Users Bulletin Board (002) 43-5041
FIDOnet: 3:670/201
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OZnet: 7:831/340
WA Contact: Nemo Multiple BBS RAPL (09) 370-1855

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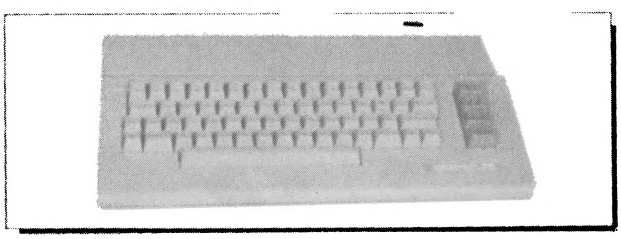
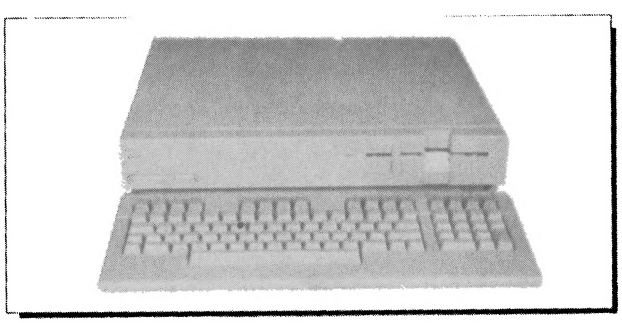


Commodore C64



Commodore 128D

THE GREAT COMMUNICATOR™

The direct-connect Hayes® and Commodore® 1670 compatible 1200 Baud modem

Everything from Electronic Mail (E-mail) to stock quotes and huge databases of every imaginable type is now on line to the small computer owner. You can even send and receive messages anywhere in the world. All you need is a telephone and a modem which allows your computer to communicate with others.

Almost all modems (and services) are set up to communicate in one or more of three speeds; 300, 1200 and 2400 Baud. Most computer users prefer 1200 Baud. (1200 Baud is about 4 times as fast as 300 which means you spend about ¼ the time and money getting the data you want and more time enjoying it. 2400 Baud is not presently available with all services.)

What is Hayes® compatibility? It's the industry standard and most all modem manufacturers have adopted the "AT" (Hayes) command set. Beware of those who don't. Virtually all software being written now uses Hayes commands. Be sure the modem you buy is truly Hayes® and Commodore 1670® compatible therefore usable in all situations and with all services.

Let's compare Minimodem-C™ with the 1670®, Avatex-e and Volks 6480®

Comparison of	Minimodem-C™ vs.	1670® vs.	Avatex-e vs.	Volks 6480®
Hayes® Compatibility?	100%	Subset Only	Subset Only	None
Commodore direct Connect?	Yes	Yes	No	Yes
Number of Status Indicators	7	0	8	0
Busy Detect?	Yes	No	No	No
DTR Signal Support?	Yes	No	Yes	No
High Speed Detect Line?	Yes	No	No	No
Number of DIP Switches	8	3	8	0
Number of Status Registers	16	3	16	0
Guarantee	1 yr.	90 days	2 yrs.	5 yrs.

Now you have the FACTS to make an informed decision.

What do you get with Minimodem-C™? Everything! You don't need to worry about cables, compatibility or anything else! The Aprotek Minimodem-C™ (#6212) plugs directly into your Commodore C-64, C-64C or C-128 USER port. It is unique in that it has two separate (switchable) emulation modes (Hayes and Commodore 1670®) to make it compatible with ALL available software. The Minimodem-C™ is a full feature, 300/1200 Baud modem with Auto Answer, Auto Dial, Touch-Tone or rotary dialing, has status indicators and a built-in speaker. Just plug it into your computer and standard phone jack with the attached cable. Minimodem-C™ is supplied with "Multiterm" terminal software and a free trial subscription to Compuserve.

Do you have more than one computer or do you plan to get another computer? We have your solution. Simply order our new Com-Modem™ adapter (#5100) along with the standard Aprotek Minimodem-H™ (#6214) which you can use with any computer that has a RS-232 serial port as well as with your Commodore. Aprotek Minimodems™ are tiny. Only 4¾" long, 2¾" wide and ¾" high. Our highly integrated, state-of-the-art circuitry makes this modem a Best Buy.

MINIMODEM SPECIFICATIONS

DATA RATE:	1200, 0-300 bps
MODULATION:	PSK @ 1200, FSK @ 0-300
COMPATIBILITY:	Bell 212A/103 & CCITT V.22/ V.21, V.22 notch filters included
OPERATIONAL MODES:	2-wire Full Duplex, Auto Dial, Auto Answer, Auto Redial.
DATA FORMAT:	Asynchronous, bit-serial
DATA INTERFACE:	Direct connect with computer specific versions. RS-232C.
TELEPHONE INTERFACE:	RJ-11 line plug
CARRIER SENSITIVITY:	On at—43dBm, Off at—48dBm

DYNAMIC RANGE:	37dB
OPERATING ENVIRONMENT:	0°C to 50°C (32°F to 122°F)
SIZE:	4.75"x 2.75"x .75"
WEIGHT:	4 oz.
POWER:	Powered from computer (-C) or by wall plug (-H, -AM)
WARRANTY:	One year limited warranty
COMMAND SET:	Hayes® AT including complete "S" registers and result codes, and self test.

SOFTWARE FEATURES:

- Send/Receive ASCII Files and Basic Files.
- Menu driven configuration.
- Zero learning time.
- Upload/Download capability for program exchange.
- Supports most popular protocols.
- 7 or 8 bit word length.
- 1 or 2 stop bits.
- Odd, even, mark, space or no parity.

BUILT WITH PRIDE IN THE USA BY APROTEK AND FULLY GUARANTEED FOR 1 YEAR

MANUFACTURED BY:

APROTEK

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CAMARILLO, CA 93010
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TURBOLOAD

CARTRIDGE FOR COMMODORE 64

- Easy to instal cartridge, simply plugs into your Commodore 64 or 128.
- Loads disks up to 6 times normal speed with both the 1541 and 1571 disk drives.
- Simplified DOS commands for loading files, formatting disks, deleting files etc.
- Stoppable directory listing which does not overwrite programs in memory.
- Built in menu maker to provide a menu for each disk to simplify loading and running of programs.
- Easy listing of BASIC programs to printer.
- Text screen dump to printer.
- Reset button — ideal for magazine pokes.
- One year warranty.

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